

AMERICAN GAS ASSOCIATION

# Monthly



MARCH  
1951

How to

# WIN

a wonderful new kitchen of your own

ORIGINAL NEW FREEDOM GAS KITCHEN-LAUNDRY



## Follow these 5 steps to success in McCall's "My Kitchen" Contest

**1.** Start with a good plan . . . such as you see in this model "New Freedom Gas Kitchen-Laundry." Notice how the appliances are arranged to save the greatest number of steps and motions. Notice, too, the easy-to-get-at cabinets for convenient storage of everything you need at each work center. *For more "New Freedom Gas Kitchen" cabinet ideas . . . turn to pages 116, 123, 153 and 157.*

**2.** Use "good taste" in selecting your new range! An automatic Gas range, of course! It gives you the best in modern cooking—plus the speed, ease and complete flexibility of heat control no other range can equal!

**3.** Choose your refrigerator with an eye to the future! In other words, a Servel Gas refrigerator! Its ultra-modern outside is matched only by its long-lasting, *silent* and motor-free "operation" on the inside.

**4.** Be sure you have enough hot water! That means a new automatic Gas water-heater. *It's 3 times faster!* What's more, it's the only water-heater that lets you dial the *right* temperature for every job!

**5.** And don't forget that new automatic Gas clothes-dryer! It's the most revolutionary work-saver in the home, today. And—like all other Gas appliances—it does a *better* job, in *less* time, for *less* money!

**Gas** has got it!  
AMERICAN GAS ASSOCIATION

**Pick the new Gas Range** that suits you best from pages 62, 88, 109, 112, 121, 125, 131, 137, 140, 144, 153.

**Look on page 95** for important news about the all-new Servel Gas refrigerator.

**See the amazing fast-recovery automatic Gas water-heaters** on pages 78, 95.

**Choose your favorite** from the new Gas clothes-dryers on pages 90, 118.

**For more winning tips** on how to design, color, window-plan and correctly arrange your contest kitchen, send 25¢ in coin for a complete set of kitchen planning ideas plus these two new books . . . "Modern Designs for Kitchens and Laundry" and "100 Pieces to Modern Kitchen Planning" to: American Gas Association, 420 Lexington Ave., New York 17, N.Y.

Name.....

Address..... City.....



Specially constructed, oversized equipment such as the sideboom tractor shown above was needed for Pacific Gas & Electric's Super Inch line. Story on page 12

AMERICA is entering the second phase of the national emergency. Primary need today is for a long-term program that will involve neither too little nor too much mobilization. . . . A similar situation confronts the gas industry. The big job now is to guard against disaster while maintaining and improving basic services. How do we stand in this new situation? . . . The industry picture to date is defined in the opening article of this issue. Attention centers around efforts to obtain vital materials and meet the requirements of an expanding defense production. A. G. A. announces a public statement for home gas users in event of an air raid alert. A joint accounting group tells how to organize an effective program for emergency protection of vital company records. There is more news on gas company protection programs. . . . While these defense activities are being pushed, research and promotion are keeping the pressure on competition. C. E. Bartlett describes an improved sales approach for water heaters. . . . Thus defense has been teamed with service. The result should be a better prepared industry and a stronger economy—longer hours for busy executives, but a headache for Joe Stalin.

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Photos courtesy Surface Combustion Corp.

# Gas spurs defense effort



## • Procurement of supplies, expansion of industrial load, head busy defense agenda



The gas industry cannot afford to "hold its breath" today any more than it could in 1942. Problems involving materials, cooperation with government, maintenance of gas service, are if anything more complex today than at the beginning of World War II. At the same time, the gas industry is fortified with previous experience and is in a stronger national position than it was nine years ago.

Will there be war or armed peace? Obviously we must prepare for either eventuality. This means an expansion of the industrial gas load for defense production, and substitution of materials, while maintaining a high level of promotion and consumer output.

Either prospect—war or peace—requires a close working relationship with governmental agencies. In this field, gas industry activities already are well advanced under the leadership of American Gas Association's National Defense Committee and the Washington program of Gas Appliance Manufacturers Association.

President Truman rang the bell ending round one when he issued his state of emergency declaration. Now for round two in the new "struggle for survival." Following is a fact-by-fact picture of the gas industry's defense program to date.

### A.G.A. program gains momentum

Chairman J French Robinson and 11 other top executives on the Association's National Defense Committee are in close contact with the government during the present emergency. Strenuous efforts are being made to assure adequate supplies of steel to serve industry, defense and public housing.

A Controlled Materials Plan, announced by the Defense Production Administration in Washington, is expected to be placed in operation by July 1, 1951. Under this plan, allocation schedules will be approved and materials allocated in order to provide supplies for the various industries supporting the current defense program. Priorities will be set up after July 1 for steel and other scarce materials.

Claimant agent for the gas industry is the U. S. Department of Interior. The department's Petroleum Administration for Defense is setting up an organization to carry on activities of the Controlled Materials Plan.

R. H. Hargrove, president, Texas Eastern Transmission Corp., Shreveport, La., has been appointed acting Assistant Deputy Administrator in charge of gas matters for the Petroleum Administration for Defense. Mr. Hargrove will serve in this capacity until a permanent organization for the gas industry in the national defense program has been formed, or until April 1. A former president and director of American Gas Association, Mr. Hargrove has been prominent in the natural gas industry for the past 20 years. Recently, he has been a member of National Petroleum Council—oil and gas industry advisory group to the Interior De-

partment. He was appointed to his new post in PAD by Secretary of Interior Oscar Chapman. Mr. Hargrove will help the Deputy Administrator, Bruce K. Brown, to organize a staff of gas industry experts to serve in the gas division of the Petroleum Administration for Defense.

"Such a staff is urgently needed immediately," Mr. Chapman stated, "in order that important work affecting the relationship of the gas industry to the defense program may proceed without delay."

Nelson W. Freeman, vice-president, Tennessee Gas Transmission Corp., has been appointed Acting Director of the PAD Gas Division by Secretary Chapman. Mr. Freeman joined the company in 1943.

He served as assistant to the president prior to becoming vice-president in 1950.

Thirty gas industry executives met in Washington on February 20 with Secretary Chapman and the Deputy Petroleum Administrator for Defense. Discussion centered around the formation of a Gas Industry Advisory Council and the staffing of the Gas Division in PAD. Two major committees were designated by the group:

(1) Personnel Advisory Committee to make recommendations on the staffing of the PAD Gas Division. E. J. Boothby, president, Washington Gas Light Co., Washington, D. C., was named chairman of this committee. Other members are: D. A. Hulcy, president, American Gas Association, and president, Lone Star Gas Co.; Paul Kayser, president, El Paso Natural Gas Co.; W. G. Maguire, chairman of the board, Panhandle Eastern Pipe Line Co., and



Wade Thompson, president, East Tennessee Natural Gas Company.

(2) **Committee on Appointments to and Organization of the Gas Industry Advisory Council.** Chairman of this committee is Stuart M. Crocker, president, The Columbia Gas System, Inc. Other members are: Eskil I. Bjork, vice-president, The Peoples Gas Light & Coke Co.; Joseph Bowes, president, Oklahoma Natural Gas Co.; A. F. Bridge, president, Southern Counties Gas Co.; E. H. Eacker, president, Boston Consolidated Gas Co.; Edward Falck, utilities consultant of Washington; N. Henry Gellert, president, Seattle Gas Co.; C. P. Rather, president, Southern Natural Gas Co., and Wade Thompson, president, East Tennessee Natural Gas Company.

**Other members of the Gas Industry Advisory Council** (in addition to the committee members listed above) are: Walter C. Beckjord, president, The Cincinnati Gas & Electric Co.; Henry Fink, president, Michigan-Wisconsin Pipe Line Co.; John A. Ferguson, executive director, Independent Natural Gas Association of America; Harland C. Forbes, executive vice-president, Consolidated Edison Co. of New York, Inc.; Robert W. Hendee, president, Colorado Interstate Gas Co.; S. B. Irelan, president, Cities Service Gas Co.; Alexander Macomber, president, Gas Service, Inc.; W. G. Marbury, president, Mississippi River Fuel Corp.; N. C. McGowen, president, United Gas Pipe Line Co.; J. F. Merriam, president, Northern Natural Gas Co.; W. C. Norman, president, Northeastern Gas Pipe Line Co.; James C. Reid, vice-president, Southern Union Gas Co.; J. French Robinson, president, The East Ohio Gas Co.; James H. Roe, Jr., Washington, D. C., attorney; C. M. Stephens, president, Council Bluffs Gas Co.; W. T. Stevenson, executive vice-president, Texas Gas Transmission Corp.; Gardiner Symonds, president, Tennessee Gas Transmission Co.; Claude A. Williams, president, Transcontinental Gas Pipe Line Co., and H. Carl Wolf, managing director, American Gas Association.

J. French Robinson was recommended for chairman of the council. The full group eventually may number between 50 and 60 members.

**Brief recommendations for customers** in event of air raid warning have been prepared by the National Defense Committee and distributed to member companies (see A.G.A. MONTHLY, February 1951, page 31). This statement is repeated below:

#### **Public Statement for Home Gas Users In An Air Raid Alert**

##### *When the Alert Is On:*

- Do not turn off gas at the meter
- Do not turn off pilot lights
- Do turn off your gas range burners
- Do turn off non-automatic gas appliances such as manually operated water heaters or room heaters

##### *If An Air Raid Occurs And The Premises Are Badly Damaged:*

- Turn off gas at the meter if it is safe and possible to do so.
- Once the main gas valve is turned off, for any reason, do not turn it on again yourself—call for a trained man.
- Your gas company is working out further detailed instructions with your local civilian defense council. Watch for these instructions, then follow them.

**Manpower**—an intensive study to determine how to

maintain adequate manpower in the gas industry has been launched by a subcommittee of the A.G.A. Personnel Committee. Top item on the agenda is preparation of a list of critical occupations which when completed would be offered for government approval.

**War damage indemnity and accelerated amortization**—Studies of both these subjects are being conducted for the A.G.A. National Defense Committee (see A.G.A. MONTHLY, January 1951, page 7).

**How well is your company protected?**—Case history information for protection against sabotage, espionage and enemy attack was presented in a special feature article in the A.G.A. MONTHLY (January 1951, page 2). The article was based on a survey of vital steps for protection adopted or planned by 18 strategically located gas companies. (Additional information appears this month on page 35.)

**Use of gas in industry**—In World War II, various manufacturers found the A.G.A. Utilization Bureau a valuable source for answers to specific questions. The Bureau's services are now available to all individual and company members. The Association's entire staff stands ready to provide information or advice to members on the various fields of defense activity.

**Has the Korean war affected house heating?**—Undoubtedly, it has. In what ways and how much will be determined by the current survey of house heating. Conducted by the A.G.A. Bureau of Statistics, this study will attempt to assess the effect of materials restrictions, changes in fuel supply, and the growth of new housing since last spring. Results of the survey will be made available to participating gas companies and GAMA manufacturers who so request.

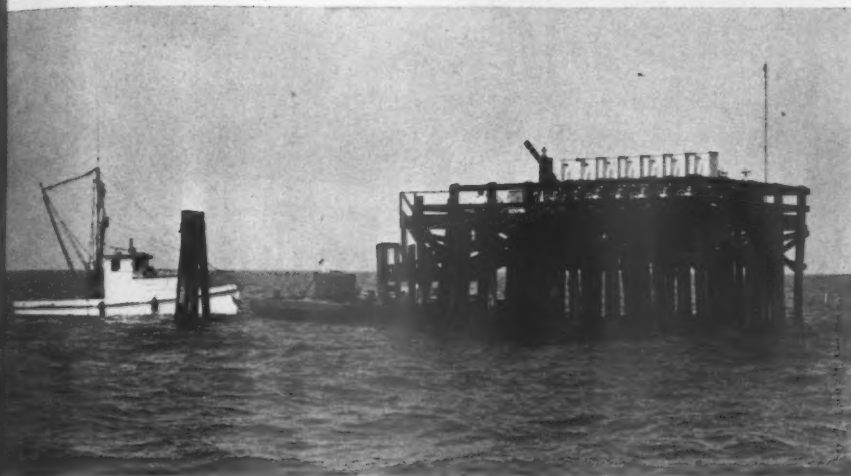
**Gas for aluminum heat treating**—Concern that gas might be excluded from use in the aluminum heat treating field now can be set at rest. A new basic specification for all the Armed Forces, MIL-H-6088 (April 11, 1950) has been issued, superseding the government specification AN-QQ-H-186a (February 10, 1944). Use of air chamber furnaces and salt baths is permitted by the newest specification. They may be fueled by either gas or electricity, provided the furnaces are of suitable type for the alloy involved.

Copies of the new specification MIL-H-6088 can be secured upon written request to Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio, or to Commanding Officer, U. S. Naval Air Station, Johnsville, Pennsylvania.

If there is any question regarding the use of gas, industrial men are advised to show their customers copies of specification MIL-H-6088. Additional information can be obtained from a brochure published by A.G.A. in 1944, "Use of Gas in Heat Treatment of Aluminum and Magnesium Alloys." This booklet gives conclusive proof that gas is the preponderant fuel for all heat treating operations. Copies of the publication are out of print at A.G.A. but probably are available in most industrial gas departments.

**How to protect vital records?**—A report covering "The Protection of Vital Corporate and Operating Records During Wartime" has been prepared jointly by subcommittees of American Gas Association and Edison Electric Institute. Details are presented in a special feature article beginning on page 13 of this issue of the MONTHLY.

**Home service is ready to help**—State agricultural agencies would be in charge of a "Garden and Home Food Preserva-



**WORLD'S LARGEST GAS ENGINE PLANT:** More aluminum for defense! Gas engines, 120 of them in three identical power plants, create energy for Aluminum Co. of America plant at Point Comfort on the Gulf Coast of Texas, 120 miles southwest of Galveston. An abundant supply of natural gas is used in place of non-available hydro-electric power. Top picture shows one of the three engine rooms, each containing 40 two-cycle gas engines. Note the resemblance to radial aircraft engine. Main shaft of each gas engine is vertical and carries rotor of a generator below the operating floor. The 11 gas cylinders, 14-inch bore and 16-inch stroke, are in a horizontal plane. They fire in rotation, but unlike the aircraft engine, drive a master gear rather than a crankshaft from which rotation is imparted to the main shaft through a proper gear train. Each of the 120 engines operates at 360 rpm and produces 1,600 hp at a high thermal efficiency of 30 percent. Bottom picture shows the gas control and metering platform in Matagorda Bay. Normally, the plant uses more than 30 million cubic feet of natural gas a day from on-shore and off-shore wells

Photos courtesy Aluminum Co. of America

tion Program" proposed by the National Advisory Garden Committee (a government group). The tentative program is designed to help conserve vital food supplies in the emergency. As soon as final details are available, home service departments will be asked to consider local cooperation with the program. Meanwhile, home service departments are urged to make their services available to all local community groups concerned with defense activities.

**Activities at A.G.A. Laboratories** continued at a record peak during 1950. About 60 percent of the Laboratories work was devoted to appliance testing, 20 percent to inspection, eight percent to requirements work, and about ten percent to research. In the last war, the Laboratories provided valuable war service as a contractor for oxygen regulators for high altitude flying. As of today, Laboratories testing activities are slowing down. A.G.A. officials have checked the Armed Forces and various manufacturers regarding the possibility of undertaking defense work in the event Laboratories facilities become available.

### GAMA keeping manufacturers posted

A four-point program of Gas Appliance Manufacturers Association is providing up-to-the-minute data in the defense production field.

First part of the information program is a new series of "Washington Reports" issued from GAMA's representative in Washington, D. C., James R. Lee. These cover regula-

tions of NPA, ESA and other agencies. The reports provide informed comment and background information. They are designed to provide the individual manufacturer member of GAMA with understanding of new regulations at the earliest possible moment.

In addition, GAMA supplies its members with "Housing Facts and Prospects" reports containing information on every multiple housing job in the United States. The reports cover military, defense and other types of housing.

A third GAMA service consists of assistance to manufacturers at the local level. This covers advice and assistance on procurement, appeals (such as appeals from stipulations of Washington regulations), contacts, defense contracts, and miscellaneous items.

Mr. Lee and his two staff assistants in Washington also help maintain liaison with government departments and agencies. This is designed to help members make the fullest possible use of their abilities to support the defense production effort.

**New sales peaks** were set during 1950 in practically all phases of the appliance manufacturing industry. However, production levels during the coming year depend, according to GAMA, upon the availability of critical metals and production facilities allocated to consumer goods. Present estimates on the availability of metals and production facilities indicate a possible reduction of 20 to 30 percent in gas appliance production during 1951. (Continued on page 44)





## Promotion's "big ten" family





Did you know that natural gas delivers five times more energy daily than all the hydro-electric power in the country put together? Did you know that natural gas serves more than 50 million people *directly* every day?

These and many other basic facts about the gas industry are dramatized in a novel "Big 10 Series" of booklets released by the Promotion Bureau of American Gas Association. Here for the first time is a complete "library" of sales information on each of the seven domestic appliances, natural gas, kitchen planning and laundry planning. The series is available to all gas companies and their dealers at a surprisingly low price.

The "Big 10 Series" is printed in four colors and can be used singly or in any grouping. Booklets can be mailed in envelopes or used as self-mailers. They are ideal for cashier's counter handouts or as literature to be passed out at home shows or home service demonstrations. They can be used by salesmen on calls, by service men, by home service girls, and in an endless number of other ways. The series can be used for free offers on radio, television or space advertising.

Contents of the booklets on gas appliances, kitchen and laundry planning, give general background information on domestic gas appliances. They pro-

vide something of a buying guide of quality, size and operating characteristics. They are not to be confused with specification or catalog sheets or with any other piece that is designed to sell a specific item of merchandise. Already, however, the "Big 10" booklets have helped to stimulate desire for gas appliances and spur customers to further shopping for specific make, model and price. The inside back cover of each booklet contains a brief "plug" on each of the seven domestic gas appliances.

Completion of the entire series is expected by the middle of this month or April 1 at the latest. To date, the initial printing of the first four booklets has been sold out. In addition, the A.G.A. Promotion Bureau has received orders for more than 150,000 of the next six booklets in the series. Copies of these were ordered even before the booklets themselves had been published.

Here in one compact series is a variety of information including many facts of a lasting nature.

"Ten Predictions for Fair and Warmer Weather When You Heat Your Home with Gas:"

(1) No other heat in the world is as sure and scientifically exact as an automatic gas heating unit.

(2) Just a flick of the finger and gas responds instantly! Gives you a higher temperature needed for very cold days,

faster than any other house heating fuel.

(3) Gas house heating is more *dependable* in unpredictable weather.

(4) Gas heating makes you more carefree in every kind of weather.

(5) A new automatic gas furnace is as simple and compact as an automatic washing machine, only smaller! Unlike other systems, gas heating works equally well up or down stairs, under or over floors, between walls or along any wall!

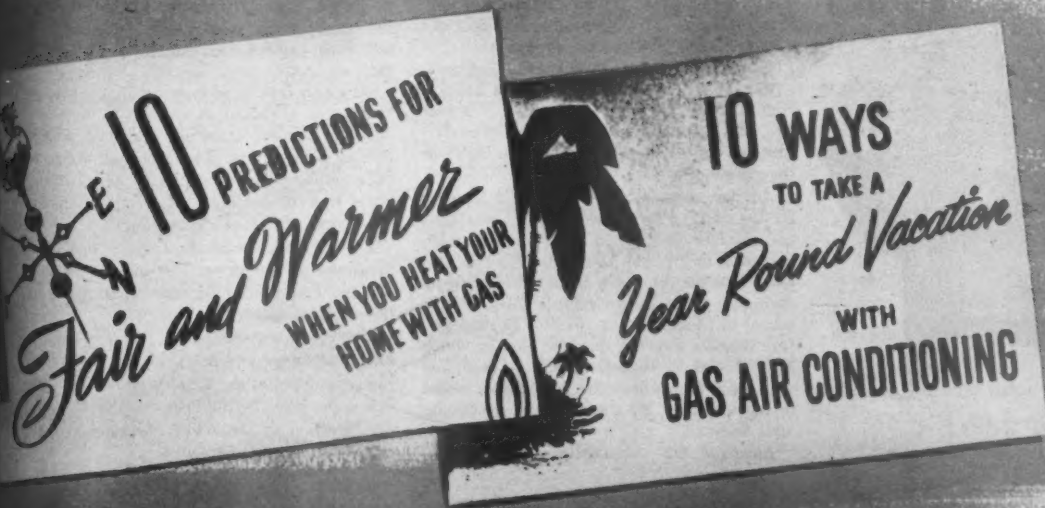
(6) No more unsightly shovels, scuttles, bins or tanks. With an automatic gas furnace the old basement can be transformed into a modern game room . . . or what might have been a cramped utility room can now be a spacious hobby room.

(7) The whole family feels and *is* healthier with modern gas heating. Air is cleaner too.

(8) Gas is the world's cleanest heating fuel, it's pure concentrated energy that burns up completely . . . leaving no smoke, no odor, no stains or no residue.

(9) Regardless of the shape, size or age of your house, there is a gas heating unit that will fill your needs *exactly*!

Air conditioning can be had with gas by: forced warm air for automatic winter air conditioning, forced air—warmed or cooled to give the same com-



fortable temperature all year around.

Central heating can be had by gas by: radiant-heating in the floor, panel heating in the wall, grills flush with the floor, regular radiators. Any one of these four types are automatically kept at desired temperature by *warm air or hot water*.

Room heating can be had with gas by: wall heaters, panel heaters, floor furnaces. These are low-cost heating units for seldom-used or isolated rooms. Many of these units are completely automatic.

Auxiliary heating can be had by gas by: warm-air circulators, steam radiators, gas logs. This type of heating is usually recommended for warmer climates where extra heating is only needed a few hours a day, a few months of the year.

(10) There are no hidden costs with gas. You pay only for the gas you use—*after you use it*. Initial cost is lower because the furnace is all you need with gas. *Maintenance* is lower. Eventual cost is far lower—since the average life of a gas unit is twice as long as that of any other type.

Here are some of the pointers from the new booklet "You'll Be in Clover 10 Times Over with A New Automatic Gas Clothes Dryer."

(1) New automatic gas clothes dryers are much faster than any other automatic method. Statisticians figure that an automatic gas clothes dryer can save you 20 complete working days a year.

(2) The new automatic gas clothes dryer saves you more than 40 miles of walking—more than 2,000 pounds of lifting a year.

(3) A new automatic clothes dryer ends weather worries for good.

(4) A new automatic clothes dryer is kinder to clothes than any other method.

(5) A new automatic clothes dryer is built for modern living. It is simple, smart, compact, and takes up only six square feet of floor space.

(6) It sanitizes, sweetens and purifies clothes.

(7) It cuts your ironing work in half.

(8) A new automatic gas clothes dryer is the most reliable method you can use.

(9) It's as automatic as modern science can make it—so automatic even a child can run it.

(10) An automatic clothes dryer costs less per load than any other automatic dryer. In some sections it's four times cheaper. In addition, there is no

expensive installation or connections. No costly repair jobs.

Want the latest information on kitchens? It's dramatized in "Ten Key Pieces to Modern Kitchen Planning." This booklet shows how to build the framework for a New Freedom Gas Kitchen, emphasizing floor planning, counter points, color cues, etc. The copy shows how a New Freedom Gas Kitchen is truly the most modern cooking center, the most efficient storage center, the fastest preparation and wash-up center, and the easiest clean-up center in the world. Finishing touches such as heating angles and clean-up details complete the copy.

Preview of the new gas refrigerator is described elsewhere in this issue of the MONTHLY. Helpful information is outlined in the "Big 10" booklet, "Ten Reasons Why You're 20 Years Ahead of the Times With A New Gas Refrigerator." The booklet emphasizes these points: (1) Gas runs the only freezing system in the world that is both *continuous* and *automatic*.

(2) Every other automatic refrigerator depends on a motor, compressor, belt, valves and dozens of other moving parts to make it (*Continued on page 47*)



## Gas industry celebrating Spring Festival

a PAR activity

APRIL, MAY AND JUNE

are Spring Festival time for the gas industry. Portfolios outlining complete plans for this hard-hitting campaign on gas ranges and all-year gas air conditioners have been mailed to gas companies so that they can complete local plans for the promotion.

Gas range section of the campaign is a "1951 Spring Style Show of New Gas Ranges" similar to the very successful drive of a year ago. Emphasis is on selling the idea of modernity, convenience and new features in the modern gas range.

An important feature of the Style Show is the use of Elizabeth Taylor pictures in a floor and window display, in newspaper advertising mats, in a jumbo price tag, etc. This was made possible through a tie-in with MGM on their new film, "Father's Little Dividend," a sequel to "Father of the Bride." Motion picture theaters showing the new film, in which Miss Taylor is co-starred, will be supplied with a giant press book that includes suggested tie-ins with local gas companies on the Spring Style Show.

American Gas Association's national con-

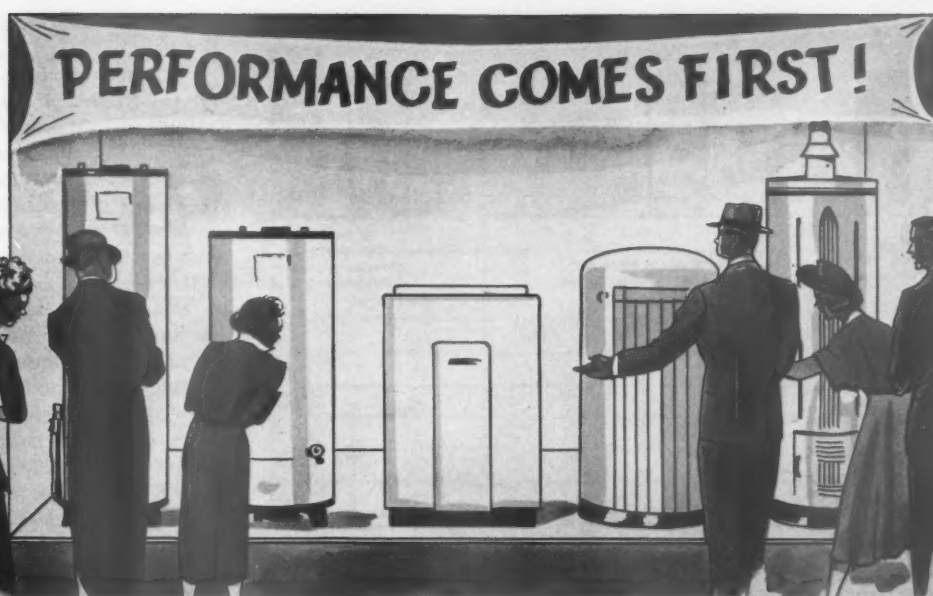
sumer advertising during April, May and June will support the Spring Style Show in all gas range insertions.

Practical suggestions for getting started in the All-Year Gas Air Conditioning market are covered in a section of the Spring Festival portfolio. Particular attention has been paid to the excellent prospects in the small commercial field—professional offices, small stores, etc.

As a new feature of the campaign, gas companies are urged to promote the other five domestic appliances while featuring ranges and air conditioners. Two pages of the portfolio outline plans for including clothes dryers, water heaters, furnaces, refrigerators and incinerators in the over-all campaign.

Direct mail, point-of-purchase materials, premiums and giveaways are offered through detailed descriptions on individual sheets in the portfolio pocket.

The campaign was planned by the A.G.A. Domestic Range and All-Year Air Conditioning committees of the Residential Gas Section. It was produced by the Promotion Bureau under direction of the A.G.A. General Promotion Planning Committee.



*Performance rating—a new, more accurate sales approach that capitalizes on hot water delivery capacity of the water heater*

By C. E. BARTLETT

Assistant to the President  
Ruud Manufacturing Co.  
Pittsburgh, Pa.

• The volume of an automatic water heater storage tank is not a valid yardstick of the heater's performance. Until recently, gas enjoyed such an obvious advantage in the water heating field that this fact largely went unnoticed. Now, however, the growth of competition has raised the necessity for a more accurate and more fundamental sales approach. The following article offers an interesting new attack on the problem—a rating method capitalizing on the hot water delivery capacity of gas water heaters. The author uses 160° water as a rating basis. Presumably a performance rating system would be equally applicable with a 140° water base. The MONTHLY welcomes suggestions or descriptions of other performance rating approaches to the water heater sales story.

By rating water heaters solely in terms of storage tank capacity (ignoring temperature and recovery) we have failed to tell Mrs. America the strength of the "orange juice." We have even hidden from her the true size of the can. We have ignored the fact that the

discriminating housewife is entitled to learn beforehand just how much hot water service she contracts for when she selects a new water heater.

When we speak to the prospect in terms of a "30-gallon" water heater, we are telling her merely that the water heater tank contains 3,930 cubic inches of wetness. Instead of talking about *heat*, our sole stock in trade, we have avoided the prospect's natural quest for performance information by answering in terms of *humidity*. Instead of telling how much useable "orange juice" she is buying, we have given her only the size number of the can.

Wouldn't we be doing an infinitely greater service if we told the user the number of gallons of hot water at a recognized standard temperature which the appliance can deliver in the first hour of use, and each hour thereafter? In what other way can we accurately relate the householder's known gallonage and temperature requirements to the water heater's ability to satisfy them?

A rating based on *content* and *temperature* is essential to show how much work-value, utility-energy, or heat a water heater has available in storage and can deliver in each hour. Nothing else will do. All the water or heat in the water becomes part of a mixture

with cold water to produce a given quantity at a given temperature, except that used in some machine operations. The proportion of the mixture that will be "hot" depends entirely upon the temperature of the "hot" water.

Fortunately, maximum service output can be determined reasonably accurately under modern methods of water heating (utilizing fixed heat inputs and controlled temperatures and subject to minimum efficiency requirements). Consequently, a system of performance rating is possible—a system that can be understood by the non-technical salesman and explained to the prospective user in understandable terms. Manufacturers and merchandisers of water heaters who fail to conceive and adopt such a system are underestimating the homeowners' buying desires and ability to understand.

Performance rating is a measure of the relative amounts of hot water service available from water heaters of various tank sizes, heat inputs and water storage temperatures. Performance ratings are expressed in terms of the number of gallons of 160° hot water available in the first hour of use, starting with a completely heated tank. Experience has shown that the daily peak load



Figure A



Figure B

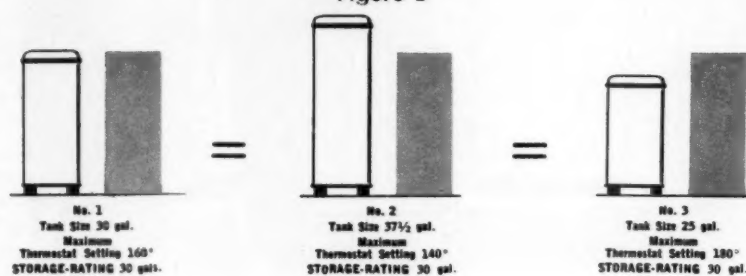


Figure C

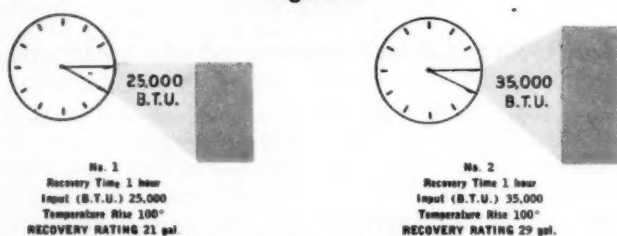


Figure A—Storage ratings of identical-size water heaters. Figure B—three water heaters with identical storage ratings. Figure C—Recovery rating in gallons is based solely on hourly Btu input

## PERFORMANCE-RATING: Minimum Recommendations.

Use this chart to determine minimum Performance-Rating recommended to meet the peak-hour and round-the-clock requirements of the home being fitted.

Number of Bedrooms	1	2	3	4	5	6
With No Automatic Washers	40	45	55	75	85	95
*Automatic Clothes Washer Only	55	55	65	85	95	105
Automatic Dishwasher Only	45	50	60	80	90	100
*Both Types Automatic Washers	60	60	70	90	100	110

\*A—Although a recommended minimum Performance-Rating of 55 is shown for one- and two-bedroom homes having an automatic clothes washer, it is recommended the 55 Performance-Rating include a minimum Recovery-Rating of 30 gallons. In cases where the automatic clothes washer handles more than three successive loads, a minimum Recovery-Rating of 35 gallons is recommended.

B—In warm climates where inlet temperatures ordinarily do not drop below 60° F., a minimum Performance-Rating 10% under that shown should provide satisfactory service.

C—In homes where there are very short runs of tubing or small diameter pipe to kitchen and bathroom outlets, a Performance-Rating slightly lower than recommended may prove satisfactory. Conversely, long runs or large sizes of pipe will necessitate an increase in Performance-Rating.

on a water heater normally lasts about one hour.

Performance rating of a water heater is: (1) its *storage rating* expressed in gallons of 160° water (or equivalent) stored by the tank, plus (2) its *recovery rating* expressed in gallons of water that the burner can heat in one hour (i.e., from a 60° cold water inlet temperature to a 160° storage temperature—a 100° rise).

This water heater rating system makes a gallon of 160° hot water the standard unit of measurement for both storage rating and recovery rating. Here is a specific volume of water which in its temperature travel from 60° cold water to 160° hot water has absorbed a known amount of heat—833 Btu. This same gallon of 160° hot water can, when mixed with an equal volume of 60° cold water, give up enough heat to produce two gallons of 110° water. By adopting as standard a known volume of water of a known temperature we can determine the available quantity of water of any needed temperature resulting from mixing our hot water unit with cold water of a known temperature.

Were it not that the great majority of thermostats on gas water heaters are adjustable without resetting only to 160°, the higher temperature of 180° might well be considered as a future method of obtaining still greater increase in capacity.

It should be remembered that this temperature is for *rating* only—an expression of capacity. The *operating temperature* at which the user runs his heater is chosen by him and the thermostat dialed accordingly. It can be anything within its limits and can be varied from time to time and for different uses if desired.

Another practical reason for selecting the 160° gallon is the new industry practice of designating recovery rating (capacity) in terms of 100° temperature rise. Granted that 60° represents a fair estimate of average inlet temperatures, then 100° rise recovery capacity results in 160° gallons. Thus, we arrive at a system under which storage rating and recovery rating utilize an identical unit of measurement. Our common denominator permits us logically to combine the two ratings to visualize the peak-hour output of the water heater, the number of gallons of



160° water available (under average conditions) during the first hour of use, starting with a completely heated tank.

## Storage rating

Storage-Rating is the number of gallons of 160° water, or *equivalent*, stored by the tank. Therefore, it is necessary to take into account both the *tank size* and the *storage temperature*, as determined from the maximum temperature setting of the thermostat.

Figure A represents three water heaters having tanks of identical size, but with different storage ratings. For a water heater equipped with a 160° maximum thermostat (Number 1), the storage rating is simply tank capacity in gallons, times 100 percent. Thus, the storage rating of such a water heater with a 30-gallon tank is 30 gallons.

This "30-gallon heater" with 160° thermostat would be able to give 30 gallons at 160°, 37½ gallons at 140°, 50 gallons at 120° and, to answer the bath question—66 gallons of water at 105°.

Water heaters equipped with thermostats having maximum settings higher or lower than 160° will have storage ratings higher or lower.

For instance, hot water stored at 140° (Number 2) will produce 20 percent less usable tempered water after mixing than will hot water stored at 160°. To determine storage rating of a water heater having a 140° thermostat, multiply its tank size by 80 percent.

Such a heater would give no 160° water, 30 gallons at 140°, and 40 gallons at 120°. On the other hand, hot water stored at 180° (Number 3) will provide 20 percent more usable, tempered water, after mixing with incoming cold water at the average inlet temperature of 60°, than will hot water stored at 160°. Therefore, the storage rating of a water heater with a 180° thermostat is determined by multiplying its tank size by 120 percent. And this heater would give 30 gallons at 180°, 36 gallons at 160°, 45 gallons at 140° and 60 gallons at 120°. Yet all of the three heaters mentioned would in the current selling pattern be "30-gallon heaters."

Figure B represents three water heaters having identical storage ratings of 30 gallons. Water heater Number 1 has a conventional 30-gallon tank and 160° thermostat. Water heater Number 2 has a (Continued on page 46)

## 2 To calculate the Storage-Rating of automatic water heaters.

Actual Tank Size (in gallons)	Storage-Rating (Equivalent 160°-gallons), with Maximum Thermostat Setting of:		
	140°	160°	180°
15	12	15	18
18	14.4	18	21.6
20	16	20	24
25	20	25	30
30	24	30	36
35	28	35	42
40	32	40	48
45	36	45	54
50	40	50	60
52	41.6	52	62.4
55	44	55	66
60	48	60	72
66	52.8	66	79.2
80	64	80	96
100	80	100	120
120	96	120	144

## 3 To calculate the Recovery-Rating of automatic water heaters.

Electric—INPUT—Gas (Watts)	Recovery-Rating (Gal., 100° Rise)
1,000	4
1,500	6
2,000	8
2,500	10
3,000	12
3,500	14
4,000	16
4,500	17
5,000	18
5,000	20
25,000	21
30,000	25
35,000	29
40,000	34
45,000	38
50,000	42
55,000	46
60,000	50
65,000	55
70,000	59

NOTE: Ratings shown for electric water heaters are the theoretical maximum attainable. They assume a heat transfer efficiency of 100%, and also assume that both upper and lower elements are "on" during complete reheating cycle. Actually, the upper element comes "on" only when incoming cold water reaches the approximate level of the element. Further, in a typical "off-peak" type of installation, a time clock prevents use of the lower element during peak-hours, thus further reducing the theoretical Recovery-Rating.

Note: Input data usually appears in plate on jacket.

# Here comes the super-inch

## Giant new 34-inch natural gas artery helping to meet major fuel needs of Northern and Central California



Now in operation on the West Coast is the Super Inch—largest diameter pipeline in the world for high-pressure transmission of natural gas. Pacific Gas & Electric Company's new 34-inch giant is delivering large quantities of natural gas into a far-flung system serving more than a million homes and businesses in Northern and Central California.

Super Inch is 502 miles long and an important part of a 1,600-mile system that taps natural gas fields in Texas and New Mexico. Cost of the new line, including compressor stations and companion facilities, was approximately \$63 million. Cost of the entire 1,600-mile system totaled \$150 million. Eastern portion of this system—in Arizona, New Mexico and Texas—was built by El Paso Natural Gas Company which delivers the gas to Pacific Gas & Electric Company.

Construction of the "Super Inch," began in June, 1949. It was a strenuous and spectacular contest of men and machines against terrain, weather and time.

From the Colorado River, which the pipeline crosses on a bridge acquired for the purpose, the route includes rugged mountains, great canyons, desert, more mountains, rivers, hills and valleys. For the first seven miles it traverses rough eroded terrain on the flank of steep rocky mountains. Then it crosses the Mojave Desert. In the Te-

hachapi Range it reaches its highest elevation—approximately 4,600 feet. In the next 25 miles it drops sharply, in the roughest country of the entire distance, to an elevation of only 200 feet in the San Joaquin Valley. Then it scales hills and runs through the Santa Clara Valley to Milpitas.

Benches 54 feet wide had to be carved around mountains and hills to provide working space for construction equipment. In several places hilltops had to be cut away to avoid sharp bends in the pipe.

The job involved the transportation of more than 200,000 tons of pipe, fittings and other materials.

To cross the Kern River, a 4,000-foot section of pipeline was laid under the river bed, with 4,000-pound weights every 15 feet to hold it in place.

Because of the record size of the pipe, more than one million dollars worth of construction equipment had to be made to order. Other machines were rebuilt.

Dust and desert heat imposed severe hardships on the crews. Heavy, dust-laden winds frequently hindered operations and sometimes forced shutdowns. At times the heat was so intense that work had to be done at night.

Despite these and other obstacles, the Super Inch was completed ahead of schedule. And the present fuel problem of Northern and Central California has been solved.

\* Top picture shows trainload of Super Inch pipe stretching toward the horizon at Mojave, California. Five-hundred-mile line required 7,048 carloads, each carrying 28 tons of pipe. (Middle) Self-propelled cleaning and priming machine removes dust, adds asphalt coat to welded pipe. (Bottom) Largest rotary type trencher ever built slicing 44-inch ditch 5½ feet deep at rate of a mile a day

# Protect your vital records

*Don't let an emergency  
catch your company  
without an effective records  
preservation program*



Photo courtesy Remington Rand Inc.

## By A.G.A.-EEI Joint Subcommittee on Preservation and Destruction of Records\*

● What is the utility industry thinking and doing about protecting vital records against bombing? Latest information on this timely subject is presented in the following interim report. Still further information will be featured at the 1951 National Conference of Electric and Gas Utility Accountants in Chicago, April 23-25.

**B**ombing and sabotage attacks on this country are a possibility in the present national emergency. This fact underlines the urgent need for utility company management to adopt effective measures to protect current and irreplaceable vital records.

Present regulatory records preservation schedules provide for the peacetime or normal operational needs. They require preservation of the original

record for definite periods of time, or in certain cases its equivalent. Existing international conditions, however, require provisions for the replacement of certain original corporate and operating records, normally permanently retained, that would be essential to restore operations in the event of their destruction.

Effectiveness of the emergency records protection program for each company can be measured when answers to the following four questions are supplied:

- (1) Why and when to protect?
- (2) What records to protect?
- (3) How to protect?
- (4) Where to protect?

This report considers possible answers to these questions as they might apply to any utility company. In addition, a schedule is included of representative records, considered to be in the irreplaceable vital class, that require extraordinary protection, together with suggested further interim protective measures.

The most feasible and practical method for the selection of the basic and vital records to be included in an extraordinary

program should rest with each department assuming responsibility for such selection, subject to top management review. Several companies are using a coordinator in this work. His first task is to coordinate the records program between the various departments of the utility, and secondly, to tie it in with other defense requirements of the company such as the dispersion of personnel, etc. A realistic approach should be used based on the minimum requirements needed to re-establish operations in the event of record destruction. Guiding principles should rest primarily on practical direct and common-sense points of view. See Schedule I for illustrated and suggested survey form.

## Why and when to protect

Obviously, not much more need be said here under the heading of "Why Protect?" Certainly with the nation operating under the possibility of bombing or sabotage, the protection of a company's basic corporate and operating records rates a top priority in any defense program. Consequently, utility management should act speedily and adequately at

\* Ohmer Ullery, The Ohio Fuel Gas Co., A. G. A. subcommittee chairman; J. V. Colley, The Dayton Power & Light Co., EEI subcommittee chairman.

## SCHEDULE I

TYPICAL LIST OF RECORDS CONSIDERED IRREPLACEABLE AND REQUIRING EXTRAORDINARY PROTECTION BY MICROFILMING OR OTHER PHOTOGRAPHY SUCH AS BLUE PRINTS, PHOTOSTATS, ETC. THE SUGGESTED TYPICAL INTERIM PROTECTION IS ALSO SHOWN

DESCRIPTION OF RECORD	INTERIM PROTECTION
<b>I. PRODUCTION, TRANSMISSION, GEOLOGICAL, UNDERGROUND STORAGE, ETC.</b>	
Well Logs Showing Geological Formation and Pipe Record	Microfilm annually logs for new wells drilled after initial protection.
Summary of Underground Storage Well Operations	None as information is presently duplicated in Field Offices.
Right of Way Easements and Land Deeds	Store photostats currently of new contracts taken after initial protection.
<b>II. ENGINEERING DEPARTMENT</b>	
Inventory and Farm Maps and Station Drawings	Store copy of Work Order or map changes.
<b>III. PLANT ACCOUNTING DEPARTMENT</b>	
Continuing Property or Unit of Property Records	Store copy of Work Order Completion Reports or equivalent, showing physical quantities and costs; also, listings if available of charges and credits to Work Orders.
Construction or Retirement Work in Progress Ledgers	
Meter History, Service Line or Other Similar Records	
<b>IV. EMPLOYEE RELATIONS AND PAYROLL DEPARTMENT</b>	
Retirement Income, Hospitalization, Life Insurance Records, and Employees' History Records	Store copy of Payroll Change Reports showing all employments, terminations, wage increases, etc.
Employees' Earnings Records	Store copy of payroll check register showing earnings, deductions, check numbers, etc.
<b>V. GENERAL ACCOUNTING DEPARTMENT</b>	
Stored Gas and Stored Gas for Current Delivery Ledgers	Store copy of monthly Gas Stored and Withdrawn from Storage Report.
Contributions in Aid of Construction Ledgers	Store monthly listing of all entries.
Customers' Advances for Construction Ledgers	Store listing of monthly activity.
Depreciation and Depletion Reserve Ledgers	Store listing of monthly activity.
Unclaimed Items Files (Checks, Customers' Deposits, etc.)	Store listing of monthly activity.
<b>VI. CUSTOMERS ACCOUNTING DEPARTMENT</b>	
Appliance Accounts Receivable Ledger	Store installment sales agreements and all posting media currently.
Customers' Service Deposit Ledger	Store detailed monthly reports.
<b>VII. TREASURY DEPARTMENT</b>	
Cash Books	Store copy of Bank Reconciliation for Drawing Accounts, including check number and date and amount of outstanding checks.
Paid Cancelled Checks	None between dates of microfilming.
<b>VIII. LAND DEPARTMENT</b>	
Oil and Gas Leases and Land Deeds	Store copies of current leases and supplemental papers.
Rental, Royalty and Cost of Leasing Ledgers	Store periodic mailing list of all payees.
Acresage, Cost, Rental and Royalty Control	Store copy of Lease Register showing daily transactions and copy of periodic trial balances.
Abstracts of Title	Store copy of new abstracts.
<b>IX. LEGAL AND CORPORATE RECORDS</b>	
Corporate Minutes	Store copy of minutes currently.
Contracts	Store copy currently.
Documental or Corporate Files	Store copy of important documents currently.
Stockholders' Ledger Records	Store copy of daily Stockholders' Transfer Sheets.
<b>X. TAX DEPARTMENT</b>	
Federal Income Tax Return Work Papers and Schedules	None between dates of microfilming or photostating.

Note: The method and frequency of microfilming or otherwise duplicating each record must be determined by each company, taking into consideration the size and volume of the record, relative importance of current changes, etc.

## SCHEDULE II

### SURVEY TO DETERMINE SUGGESTED METHOD OF PROTECTION AGAINST DESTRUCTION OF RECORDS

Record: Continuing Property Record (Ledger Records and Contracts)

No. of Documents: 200,000	Printed Front & Back: 50%	Covering Period From: To:
Department: Plant Accounting	Retention Period: Permanent	
Location of Record: Kanawha Valley Bldg.	How Housed: Fireproof Vault	
No. of Duplicate Copies Available: None	Where Filed:	
Approx. No. of Documents per Annum: 2,000	Size of Document: 11 x 17	

Effect on Operations if Destroyed: No record of inventory and actual cost of property as required for rate, insurance, financial or other property valuation purposes. Assuming work papers not destroyed, the record would be extremely costly to reconstruct.

Recommended Protective Measures: Microfilm records of work order cost statements, showing property installed and removed with related cost, to another location. Plan on microfilm record annually, at which time previous microfilm, copies of order completion reports, etc. for previous year, may be destroyed.

Microfilm [X] Other:

Prepared by	ABC
Reviewed by	DEF
Approved by	HJK Department Head or Manager
Approved by	Group Manager

\* All plant existing on 1-1-40, and all additions and retirements December 31, 1949.

this time to formulate measures of protection for absolutely vital records.

Likewise, "When to protect" speaks for itself. It is also obvious that now is the time for each company to plan, decide, and act in a practical manner on what is to be done and how far it should go in the protection of its vital records.

Needless to say, the current basic records that are absolutely necessary to the continued operation of the company should be determined and protected immediately. This stand is justified simply as a matter of insurance. Most basic records falling in the vital category should be given adequate protection in peacetime. While emphasis presently is directed to the possibility of destruction by bombing or sabotage, the proposed program will afford protection against the prevalent normal hazards of fire, flood, etc. Thus steps taken for wartime protection may well affect peacetime protection.

### What records to protect?

What are a company's vital and irreplaceable current basic records? This is without doubt the most complex and important factor in the company's development of an over-all emergency program.



### SCHEDULE III

#### TYPICAL LIST OF RECORDS OR COPIES OF RECORDS TO BE SENT CURRENTLY TO DESIGNATED LOCATIONS FOR SAFE-KEEPING. THESE ITEMS ARE IN ADDITION TO THOSE LISTED UNDER INTERIM PROTECTION ON SCHEDULE II.

##### GENERAL ACCOUNTING DEPARTMENT

- (a) Detailed monthly trial balances and listings of General, Auxiliary & Subsidiary Ledgers (ledgers not microfilmed monthly). These detailed trial balances and listings should be in sufficient detail to enable reopening the books and records of the Company.
- (b) Monthly trial balance, by budget and work order numbers, of construction and retirement work in progress, etc.
- (c) Financial Statements, Annual Reports, S. E. C. Applications, Original Cost Reports, Orders Issued by Regulatory Commissions, and other important documents of similar nature.
- (d) Manuals of Accounting Procedures.
- (e) Accounts Payable lists or equivalent, showing names, amounts, and check numbers.

##### CUSTOMERS ACCOUNTING DEPARTMENT

- (a) Periodic listing of customers for locations considered vulnerable to bombing.
- (b) Sales Registers or their equivalent.
- (c) Accounts Receivable Cycle Balance.
- (d) Manuals of Accounting Procedures.

##### TABULATING DEPARTMENT

- (a) Photostat copy of tabulating machine board wiring diagrams for billing, general accounting, etc.
- (b) Code books showing conversion from manual to tabulating with an explanation of Code Numbers.

##### TREASURY DEPARTMENT

- (a) Daily cash or other periodic cash reports for drawing accounts.
- (b) Daily check register of General and Disbursement Accounts.

Herein lies the need for effective research, study, development and the use of good judgment, especially since no previous pattern or procedure is available from without or within the industry for guidance. A well-balanced program should be striven for, keeping in mind that in an undertaking of this kind, it is just as serious to under-protect as it is costly and impractical to over-protect. Protection of less essential records and failure to protect records that are vital, are both conditions to be carefully guarded against.

As a guiding principle, it is suggested that top level current basic records requiring replacement in as short a time as possible in the event of destruction be selected, based upon the need of such records to permit the continuance of operations and service to customers. From this viewpoint a company can best determine its most vital current records to be protected or duplicated.

A typical list of records falling in this first category certainly should include such basic records as maps and station drawings, general and subsidiary ledgers, capital stock and related records, corporate minute books, plant and construction

ledgers, franchises, land deeds, special contracts, rights-of-way, and records of similar nature.

Records not included in the top level group of records need no extraordinary protective measures. While there are numerous relatively important records of a statistical and historical nature, the usable value of these is such that their inclusion under this extraordinary preservation program is not believed justified. Naturally, each company should give consideration to the security afforded by presently having duplicate copies of records housed at scattered locations. Likewise, companies having all operations centered in one location and without remote or scattered offices, might disperse copies to carefully selected locations for storage.

It is recognized that there are certain voluminous, detailed and very important records, such as certain customers accounting and material and stores records, that, regardless of their importance and the desirability to afford protection, are considered impractical to duplicate. This conclusion was reached after considering the constant state of change to which such records are subject from day to day. Any

attempt to duplicate interim posting media is not only unwieldy but time consuming and involves prohibitive costs.

Preclusion of the outright duplication of these important voluminous records does not indicate that other effective and protective measures should not be planned for their preservation. An illustration in the customer activities or accounts receivable group of records is periodic listings of customers, as well as sending to remote storage points cycle balance data and the monthly sales registers or their equivalent. With these records, current meter reading books quickly could be reproduced, as well as customers ledger records.

In the collection areas, cash coupons, as well as other pertinent interim accounting data, might currently be stored in a location other than the point of immediate use. Some companies have already provided for this method by inter-company location filing on a daily basis utilizing existing offices, or by the establishing of remote storage locations for this purpose. Other companies microfilm cash receipts daily. Still others have expressed the opinion that as a last resort in the event of loss of cash stubs, the proof of past payments would, to a large degree, rest with the customer.

As to materials and supplies, companies having centralized accounting have available monthly reports showing quantities and prices. Companies not having such reports could resort to an inventory and estimated prices to reestablish inventory values and to determine losses.

Companies operating in metropolitan areas must give weight to the concentration of large volume records at a central location. Companies with customers' accounting locations spread over a wide territory and with decentralized accounting, possibly should give this factor different weight as compared to the metropolitan companies. It should not be inferred that a company with decentralized operations may not need to provide protection for certain of its locations, since such locations may be just as vulnerable to disaster hazards, or more so, than central metropolitan locations.

Protection for general and subsidiary ledgers may be provided on a current basis by remotely storing monthly trial balances. This eliminates the need for the duplication currently of the ledgers themselves.

Companies utilizing tabulating equipment should consider filing of photostatic



Forms used in microfilming records: Exhibit 1 (top center), authorization, microfilming and inspection report; Exhibit 2 (top left), film indexing procedure for each record; Exhibits 3 and 4, samples of index, correction and other flash cards

copies of plug board diagrams for both customers and general accounting at a remote location.

It is also advisable to store a copy of code books or manuals showing conversion from manual to mechanized operations together with an explanation of code numbers, etc.

It is also desirable to arrange work agreements between neighboring utilities (having similar accounting equipment) for carrying on operations should one or the other be bombed.

Records to protect are those that are irreplaceable or extremely costly to replace and records that are essential for the continuation of operations. For a representative list of such top level records requiring protection, see Schedule III. It is believed that protection for records of this class need not go beyond what a prudent preservation policy would provide.

Interim records between established periodic microfilming dates (e.g., prop-

erty and plant cost records, etc.), necessary to bring up to date basic top level records, need careful consideration. See Schedules II and III for a list of typical interim records referred to at this point.

### How to protect records

"How to Protect?" covers the best means of protection. This may consist of photostats, microfilming or other photography, carbon copies, tabulating cards, etc., and does not refer exclusively to any particular type of facility to be employed. Generally these cover: (a) photographs or duplicates of certain records and the remote storage of the copy together with related interim accounting data; (b) protection of others by remote storage of current trial balances; (c) protection of voluminous top level detailed records by storage of sufficient basic underlying information currently or periodically to provide the reasonable reconstruction of essential information.

How frequently should top level records be photographed? This is a major question. Here again each company must decide for itself. The rate of frequency generally will be governed by the cost of reproduction as compared with the cost of handling the storage of interim accounting data between duplication dates. Another important factor is the volume of accumulated interim accounting data.

Similarly, along with this protection, necessary interim posting data for each top level record should be determined. Schedules should be set up and made effective for the record's delivery and turnover in safe storage. Schedules also should be prepared for voluminous detailed records and arrangements made to place the plan in operation, either immediately or as international conditions justify.

The inter-filing or transfer of voluminous detailed supporting data between offices and similar measures of protection for such records is another emergency safeguard that might be utilized during an emergency.

Microfilming appears to be the best method of protecting and perpetuating the records falling in group (a). A wide selection of microfilming equipment is available. Care should be taken to select the type most adaptable to your problem. Whether to purchase, rent or to contract for such service should be decided by each company. The best method of handling the processing of the film also must be determined. Some companies, especially those engaged in their own printing, no doubt will do their own processing, while others will let a microfilming firm do theirs. The important thing here, of course, is to have the film processed currently. Most important, the film should be inspected carefully to insure the adequacy of the photography and the ability subsequently to reproduce a satisfactory record, if and when needed.

Mechanical equipment is available to enlarge and reproduce on a mass production basis from the microfilm to sensitized photographic paper. However, the element of cost is of important consideration here, since the photographic paper is costly and of relatively short life.

Proper indexing of all records and film and the insertion of index and other flash cards is most important and must be carefully considered. A detailed microfilming procedure which has been developed by a company in the industry and is considered adequate is included at the end of this article. (Continued on page 42)

# Employee "wrinkles" help safety crusade

*Accident prevention group appeals for wider use of employee suggestions and creation of a "safe attitude" among gas company workers*

Safety is more than a fringe benefit! "Every one in our plant is safety-conscious," a friend told the writer last month. "It's like an extra something in your pay envelope!"

Pick any company that has a fine safety record. Ask any employee whether he appreciates working in safe surroundings. You can be sure he does! Probably his family appreciates it even more!

Pick the safety director of a company with a mediocre or even a poor safety record. Ask him to name the biggest stumbling blocks in accident prevention. Chances are he will name two: lack of interest by management, and employee belief that the company's work is inherently hazardous.

All accidents cannot be avoided—either in industry, on the highway or in the home. But certainly the great majority of accidents can be stopped. Thirty years ago twice as many men were killed on the job in America as were killed off the job. Today the record is reversed. In 1949, some 15,000 men lost their lives while at work in industry. But 31,000 industrial workers were killed away from their jobs—at home, at play or in their cars.

The steel industry, during the past 40 years has reduced its accident frequency 90 percent. In 1949 steel was the fourth safest among all major American industries.

Our own industry contains many companies with exceptionally good safety records. One large gas company experienced only 1.93 disabling injuries per

million manhours worked in 1949. The same year, a smaller combination company had only 1.45 disabling injuries per million manhours. Many things are possible in America—even safety.

Management and its right hand man, the safety director, must find new and more effective ways of showing employees that theirs is a safe place to work. To a large extent, employee communication can create this "safe attitude" among workers.

The employee himself can play an important part in the safety crusade. Here is a good example from Colorado Springs, Colorado.

Until recently about five men, ropes, crowbars and much lifting and straining were needed to slide a cylinder head into place on a Worthington horizontal engine. Now the same job requires only two men, releasing three for other duties. The answer came through a cylinder head lifter conceived and perfected by three station crew men at Colorado Interstate Gas Company, with suggestions from other employees. (See accompanying pictures.)

This simple but effective lifter recently came to the attention of the Accident Prevention Committee of American Gas Association. Details of the lifter are now available to all member companies of A. G. A. as a special safety reprint of the National Safety Council.

Through the efforts of the A. G. A. Accident Prevention Committee, the National Safety Council has also published the following safe procedure for starting



New cylinder head lifter perfected by station repair crew of Colorado Interstate Gas Company. Novel device simplifies lifting operation, releases three men for other duties. Employee ideas of this type can be powerful safety weapons

a two-cycle engine. Here again details are based on actual experience (see accompanying pictures).

Safe procedure for starting a two-cycle engine:

*First*—Check the engine. Be sure all switches, valves, and other parts are in proper position for starting.

*Second*—With the ignition switch off and the fuel gas valve closed, turn on the starting air.

*Third*—When the engine is rolling at good speed and has been purged with air, turn the ignition switch on and slowly open the fuel gas valve.

*Fourth*—When the engine begins to





Scavenging air chamber on a two-cycle engine before (above) and after a damaging explosion (right). Experience shows that the only precaution that will prevent a repetition of the trouble is a thorough purging of the engine before the ignition is turned on. Safe procedure for starting a two-cycle engine has been prepared by the A. G. A. Accident Prevention Committee and is now available to the industry through the National Safety Council.

fire, close the air starting valve and continue to open the fuel gas valve slowly to the full throttle position.

*Fifth*—If the engine fails to fire immediately, turn the ignition switch off, close the fuel gas valve and turn on the air. When the engine is again purged, reopen the fuel gas valve.

The cylinder head lifter and engine starting procedure are the first in a new series of working items designed to help the industry improve its safety record. Tried and proved employee ideas can be tremendously effective safety weapons.

Don't let safety be your "soft spot." Check your company's suggestion files and send the best safety wrinkles to the A. G. A. Accident Prevention Committee, American Gas Association, 420 Lexington Ave., New York 17, N. Y. You will help to make your industry a better, safer place to work.

## Safety notes

Some 523 Philadelphia Electric Company employees have been presented with "Safe Driver Certificates" for driving ten or more years without an accident. H. B. Bryans, president of the company, delivered the awards at a meeting of the company's employees association.

Record of the 523 drivers is a grand total of 8,790 accident-free years. Five company employees drove an estimated total of 1,500,000 miles without an accident during their 25 years with the utility. Watches bearing engraved citations were presented to these five men.

Honor and merit certificates went to various departments and divisions for their safety records. Seven first awards of bronze plaques were granted to the section of each division in the contest having the lowest number of lost-time accidents for each 100 employees.

● The following abridged article from The Brooklyn Union "Gas News" is reprinted in the hope that it will help other member companies that are striving to better their safety records.

The Brooklyn Union Gas Company was a safer place in which to work in 1950 than it was during 1949, according to a review of accident experiences issued by the Executive Committee on Safety and Sanitation. In fact, our accident experience indicates that it was safer last year than in any other since 1943. Not only were there fewer disabling injuries but those that we had, compared with other years, were of a less serious nature.

There were 206 disabling injuries during 1950 as compared to 230 for 1949 and 257 for 1948.

However, these figures are a part of the past. We are now in 1951 and the challenge is "How safe will we be this year?" Striving to better last year's figure will mean a rechecking of work methods and the encouragement of better safety performance on the part of each individual workman.

Safety shoes, goggles and other personal safety equipment played an important part in preventing personal injuries and lessened the severity of others.

Approximately 50 percent of the 206 disabling injuries that occurred in 1950 were due to the following reasons: (1) inattention (48 cases), (2) employee weak physically (26 cases), (3) employee used poor judgment (14 cases), (4) interference by others (10 cases). If we eliminated inattention, the biggest cause, our disabling injuries for the year would have been 25 percent lower.

"Employee weak physically" is the term used for cases where an employee claims disability from doing work that places no unusual burden on the muscle involved and which is being done by other employees without disability.

"Poor judgment" cases are those where the job or part of it was looked over and injury resulted because the incorrect or unsafe way was selected rather than the correct or safe way.

"Interference by others" included cases where an employee is injured through no fault of his own and while taking reasonable safety precautions. Injuries due to dog or insect bites usually are listed under this classification.

On each operation employees are urged to consider the use of safety equipment. Is it necessary? When in doubt use it—*never take a chance!* Remember, safety equipment furnishes the necessary protection not only on the big job but also in work where the principal cause of danger may be no more than a foreign object whirled about by a gust of wind. Your "right choice" may mean the difference between an accident and safety—between suffering and good health.



Off-peak natural gas to fire  
boilers at New York generating station

# Purging gas piping at Hell Gate

By CHARLES J. SMITH\*

General Superintendent, Station  
Construction & Shops Department  
Consolidated Edison Co. of  
New York, Inc.

• The following article was written especially for the A. G. A. MONTHLY as a contribution of the Editorial Committee, A. G. A. Operating Section. Additional feature articles and news accounts of operating activities are now being solicited by the chairman of the Editorial Committee, Jesse S. Yeaw, laboratory director, Rochester Gas & Electric Corp., 89 East Ave., Rochester, N. Y. Please submit your ideas or suggestions direct to Mr. Yeaw.

\* Mr. Smith has been an active member of the current Purging Committee, American Gas Association, since the committee's formation in 1946-47.

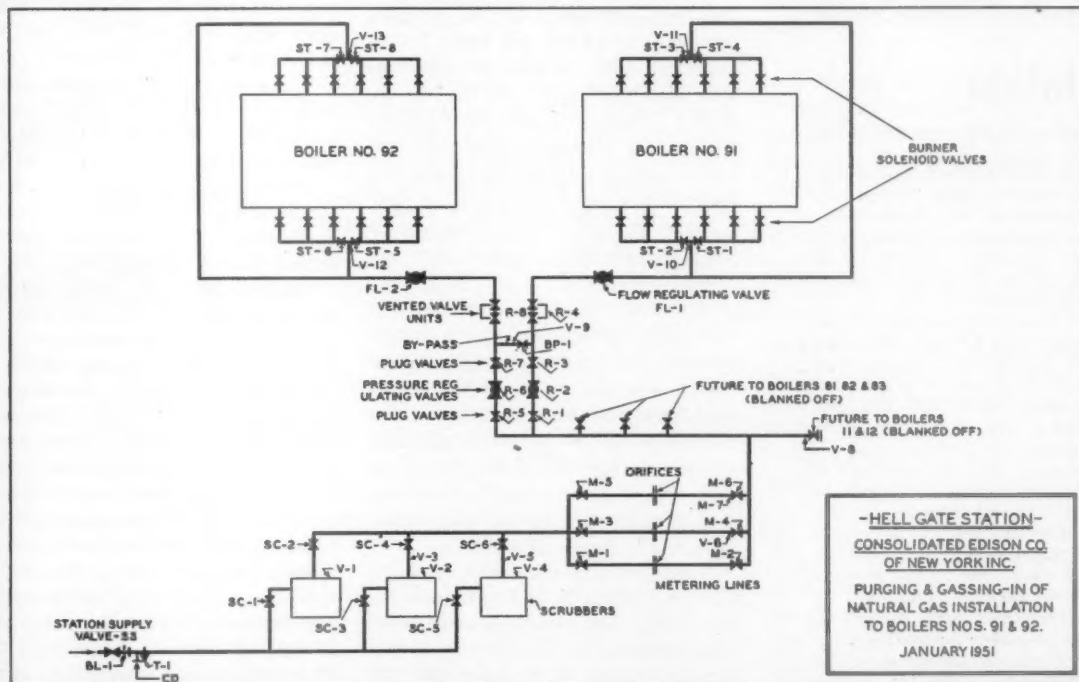
Electric publicists might be the last to admit it, but generating stations often are gas customers. Gas used for boiler ignition is no novelty. But as natural gas spreads across the country, bigger and better gas lines are being installed in electric generating stations and the newly available fuel is being used in large boilers.

At Consolidated Edison, some boilers at the Hell Gate generating station (nameplate rating: 630,000 kw) are being adapted to burn natural gas. The station is located directly beside the route of the main through which gas will be carried to gas companies in metropolitan New York.

The station will burn only off-peak gas, since the primary use of natural gas is to be in the gas manufacturing plants. During the winter months it

is expected that the gas plants will absorb Consolidated Edison's contract maximum of 128 million cubic feet per day. But during the summer when gas demands are low, Hell Gate station will be able to use the surplus. At first only a few boilers will be prepared to burn natural gas. However, the ultimate plan calls for the station to be capable of burning 165 million cubic feet of gas per day. This may be useful should a contingency arise that requires blowing down the line. The gas can be burned at Hell Gate rather than wasted in the atmosphere.

The new gas lines bring problems to the electric stations as well as benefits. A generating station, almost by definition, is a complicated maze of pipes and valves. Steam, water, air, oil and cable conduits are routed all



through the station. The addition of gas piping does not simplify the plant's appearance. There is always the danger of property damage or personnel injury if a gas valve is opened in a false operation or a gas main is cut into by mistake. Electric personnel must be impressed with the principles of gas operation and schooled in the importance of a carefully planned procedure when working with gas lines.

Piping installation at Hell Gate is indicated on the accompanying sketch. It consists of gas cleaning, metering and pressure regulating equipment outside the station, with supply lines through the building to numerous burner locations on each converted boiler.

The gas supply is taken through a 12 inch connection to the principal main that supplies gas to the metropolitan companies. Gas pressure will be between 130 psi and 250 psi and average about 200 psi at the beginning.

Passing through a set of three dry-type scrubbers placed in parallel, and designed to eliminate dust, dirt and scale, the gas is metered by orifices placed in a set of four meter pipe runs.

The line pressure is lowered by regulators before the gas is introduced into the boiler room. Each boiler has its own regulator, with cross-over piping to permit continued operation in the event of regulator trouble. The pressure at the burner tips will range between three and seven pounds.

## Imitation

● The following letter appeared in *Tide* Magazine, January 19, 1951:

"Imitation, my dear editors, is not only flattering but often quite amusing in a plagiaristic sort of way. Perhaps that's why I've enjoyed your selection (*Tide*, 'Stoppers'—December 29, 1950) of the Hotpoint caption 'Where food is famous you'll find Hotpoint.'

"Since about 1946 we have been using the statement 'Where food is—it's cooked with gas' for our client American Gas Association. Sometimes we've used it in general advertisements and frequently we've used it in specific case history advertisements.

"Since it has taken Hotpoint and its agency copywriters four years to find the effectiveness of this statement and then convert it to their own use I feel very flattered that it should finally reach the 'Stoppers' corner even though Hotpoint has not converted it to its own use.

"'Where food is' you'll still find the blue flame of modern gas cooking. . . ."  
—A. C. Erans, account executive, Ketchum, MacLeod & Grove, Inc.

Solenoid-operated valves are located on each burner and interlocked with controls. Thus the burners are valved off if the pressure of the natural gas goes high or goes low, if the furnace of the boiler becomes pressurized or if trouble develops with the forced or induced draft fans.

Even though the lines inside the station building will not carry the line pressure in normal operation, they were designed to carry such a pressure in the event of regulator breakdown. In fact, the design inside the station is identical with the design of the rest of the system. While initial pressures are not expected to exceed 275 psi, the line has been designed for 350 psi with a safety factor of more than five.

A testing procedure was developed for the interior piping at Hell Gate and patterned along the lines of the outside testing. At first, air pressure tests of 100 and 200 psi were used for short durations for the purpose of locating major leaks and for blowing out loose scale and sand. The foreign materials were removed through the blow-off connections at the bottom of each of the three scrubbers.

When the line had blown itself reasonably clean, an air pressure test at 425 psi was used to check for breakdowns. Soap water was used over the entire system to locate small leaks.

When all faults located by this test had been remedied, the air pressure was built up to 425 psi again for an extended test. Carbon tetrachloride was introduced with the air. An indicator capable of detecting minute amounts of carbon tetrachloride was used to search for any small leaks that might have escaped the soap water test.

After the Hell Gate piping system had been checked as tight and approved for natural gas use, the air was purged out with CO<sub>2</sub> supplied from cylinders. Natural gas at 20-pounds pressure in the supply main to the station was used to gas-in the system after the air had been purged out. The procedure used to purge the gas lines and the methods of testing the purge gases were based on those which have been recommended as safe and reliable by A. G. A. Purging Committee.

A condensed version of the original schedule prepared and followed for the purging and gassing-in of the Hell Gate piping system is included in this summary report. It excludes only the

purging of the small diameter instrument pressure lines.

## Preparations

Notify the plant general superintendent of date for purging out air and gassing-in operations.

Install vents V-1, V-2, V-3, V-4, V-5, V-6, V-7, V-8, V-9, V-10, V-11, V-12, and V-13.

Prepare to remove blank flange BF-1 from station side of supply valve SS.

Prepare to install filler tee T-1 between valve SS and station supply line, with insulated joint at valve.

Install blank flange with inert gas connection CD on bull of tee T-1, and make up joint tight.

Prepare to purge with carbon dioxide from CD to vents V-1 to V-13.

## Procedure

Close and lock valve SS.

Close valves SC-4, SC-6, M-4, M-6, BP-1, ST-1, ST-2, ST-3, ST-4, ST-5, ST-6, ST-7, and ST-8.

Open valves SC-1, SC-2, SC-3, SC-5, M-1, M-2, M-3, M-5, R-1, R-2, R-3, R-4, R-5, R-6, R-7, R-8, FL-1, FL-2.

Remove BL-1, install T-1, and make up joints tight.

Open vents V-1 to V-5 inclusive.

Admit carbon dioxide at CD, purging lines, equipment, and valves of air from CD to vents V-1 to V-5 inclusive.

When satisfactory analyses are obtained at vents V-1 to V-5 inclusive, open vents V-6, V-7, V-8, and V-9, and close V-1 to V-5 inclusive.

When satisfactory analyses are obtained at vents V-6, V-7, V-8, and V-9, open vents V-10, V-11, V-12, and V-13 and close vents V-6, V-7, V-8 and V-9.

When satisfactory analyses are obtained at vents V-10, V-11, V-12, and V-13, close these vents and shut off carbon dioxide at CD.

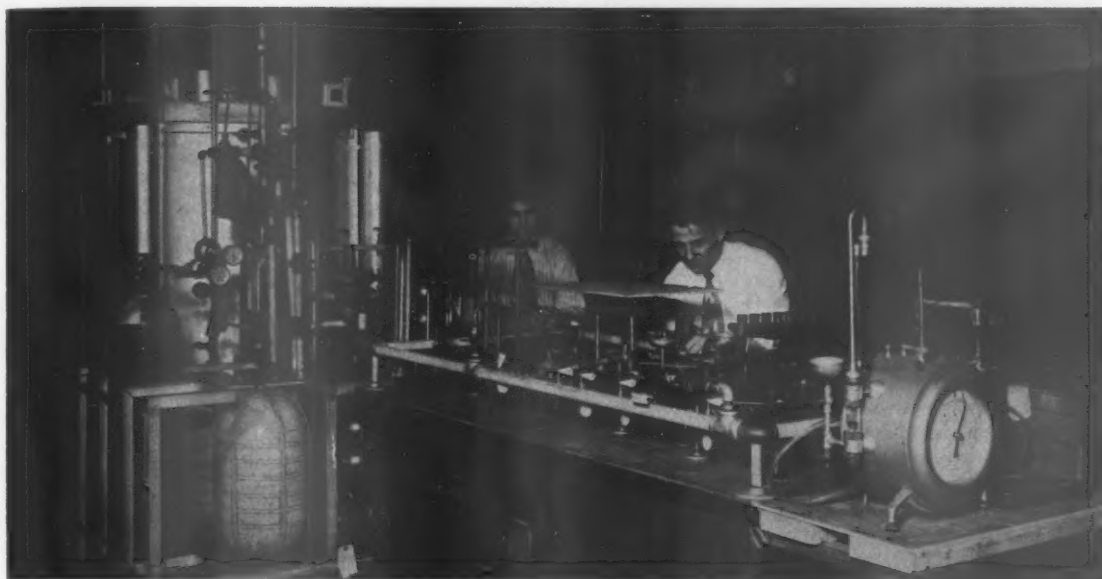
Remove inert gas connection CD and plug opening.

Remove lock and crack open valve SS, admitting flammable gas and purging lines, equipment, and valves of carbon dioxide from valve SS to vents V-1 to V-13 inclusive. Vents V-1 to V-13 inclusive are to be opened progressively and each vent closed as soon as satisfactory analysis is indicated.

When installation has been gassed-in, remove vents and plug all openings.

Advise gas dispatcher and plant general superintendent that flammable gas is available at boiler stop valves ST-1 to ST-8 inclusive, of boilers 91 and 92.

# Research in the news . . . . .



Burner equipment being used in laboratory at Institute of Gas Technology during A. G. A. research study of the interchangeability of oil and natural gas. Picture above shows burner equipment and storage holders at the left. First part of the project has been completed and is reported below

## Interchangeability studied for oil and natural gas

### a PAR activity

Effect of inerts and scrubbing on a true oil gas of constant Btu (approximately 1,300) has been determined under a peak load project conducted by the Association's Gas Production Research Committee. The study, Project PB-6, "Interchangeability of Oil and Natural Gas," is being conducted at Institute of Gas Technology in Chicago.

During the completed first phase of the study, varying percentages of inerts were added to the 1,300 Btu gas. Thus the burner combustion tests were conducted on an oil gas-inert mixture of decreasing Btu as the inert content in-

creased. Using the same basic oil gas, scrubbing was simulated by passing the gas through a  $-40^{\circ}\text{F}$  condensation trap. This gas was then diluted with inerts and burner tests conducted as before.

Tests were conducted on six burners especially selected as "critical." These burners were adjusted on Chicago natural gas-high inert, 0.68 sp gr, 1,020 Btu.

Tentative indications, based on only the first phase of the project, are as follows:

- (1) Yellow tips are the most significant effect, limiting substitutability. This is especially true if burners are adjusted on the soft side.

- (2) Where the normal adjustment is soft, scrubbing will increase the quantity of oil gas substitutable.

- (3) With medium burner adjustments, increasing the inert content will increase the quantity of oil gas substitutable.

It should be emphasized that the above statements apply only to the gases, burners and conditions used in the tests. Extrapolation to other situations is not feasible.

To fill in the picture, the second phase of this work will investigate burner performance on a constant oil gas-inert mixture of approximately 1,050 Btu. The same test procedures will be followed. Completion of this work will throw additional light on the effects of scrubbing and inert addition, as well as burner adjustment.

On January 1, 1951 this interchangeability project was consolidated with Project CPR-23, "Oil Gasification," under a new supervising committee. The move is expected to hasten the accumulation of information on both utilization and production of oil gas. Specific findings of the project will be published later this year. (Continued on page 22)

# Power burner firing for heavy-duty cooking

## a PAR activity

**P**ower burners for heavy-duty commercial kitchen equipment are thought by many to provide an open road to the over-all improvement of gas-fired hotel and restaurant installations. PAR Plan research conducted at American Gas Association Laboratories under direction of the Committee on Industrial and Commercial Research tends to confirm this view.

Experimental installation of power burners was made in a conventional solid-top heavy-duty hotel and restaurant range and in a heavy-duty commercial broiler. Results of the investigation are reported in Research Bulletin 61, "Investigation of Heating Contemporary Gas Food Service Equipment With Power Burners," recently published.

On the whole, improved performance resulted from the installation of power burners. The tests provide excellent basic technical information for manufacturers who may be interested in exploring the matter further. No basic problems were encountered which seemed to offer insurmountable difficulties to ultimate satis-

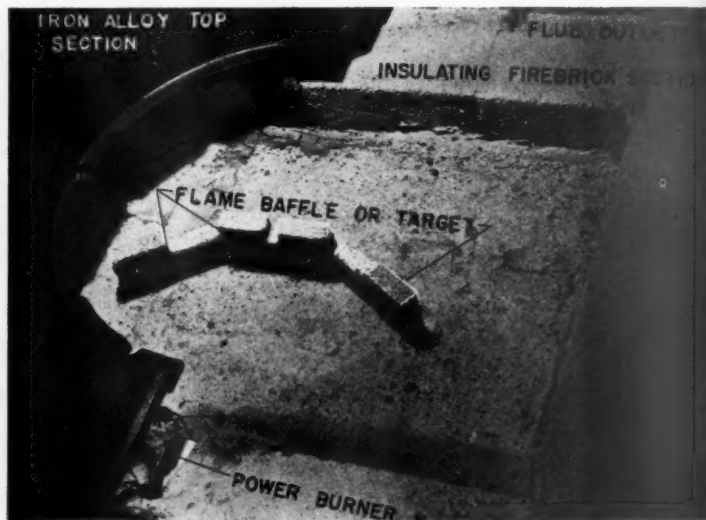
factory solution in practice. Specific design of such equipment for power burner firing, as well as refined engineering of power burners for definite commercial cooking applications, seems feasible.

One of the advantages offered by power burner applications is to minimize the limitations of combustion air supply, flame impingement and venting as compared with the use of conventional atmospheric burners. Complete combustion of totally aerated gas mixtures can be achieved with flames burning in an atmosphere of their own combustion products without access to secondary air. Therefore considerably wider design latitude is possible with power burners than with atmospheric burners. Providing positive venting, power burners would seem to eliminate the necessity for such great dependence on such factors as flue priming, flue height, flue temperature, and updraft and downdraft conditions. On the other hand, new types of ignition and temperature control problems present themselves. An entirely new factor in gas cooking appliances introduces itself by dependence upon motors, blowers and mixing devices for combustion. The noise problem also arises.

Figure 1 shows the heavy-duty hot-top hotel and restaurant range employed in the investigation. Figure 2 shows the arrangement of one of the power burners installed in its top section. Note that it

is a horizontal center-fired burner with firebrick used to insulate the top section, to baffle the flame, and to distribute the hot gases beneath the top plate. Figure 3 shows one of the power burners operating in the heavy-duty broiler. Figure 4 reveals the arrangement employed, two burner radiant sections being placed in approximately the same relative position as the original atmospheric burner radiant section.

An initial series of tests were conducted to establish for comparative purposes the performance and operating characteristics of the various units as originally supplied with atmospheric burners. The applicable American Standard approval requirements were followed. In the power burners tests various burners and arrangements were used. These included use of tunnel firing of the top section from the front and center of the range, vertical firing at the center of the top section, tangential firing from the front, and horizontal firing from the front and center. The oven was fired from the front and center and the rear and center in variations of horizontal firing, while the radiant sections were used for the broiler. These were fired in several ways so that a substantial amount of data and other information could be collected. These data showed the effects of the various systems and pointed the way to successfully employing them in each type of installation to obtain re-



**POWER BURNER FIRING:** Figure 1 at left shows heavy-duty hot-top hotel and restaurant range experimentally fired with power burners during A. G. A. research investigation. Figure 2 above shows horizontal center-fired power burner arrangement in range top section





**POWER BURNER FIRING:** Figure 3—Close-up of power burner operating in broiler showing radiating characteristics of ceramics

sults comparable to or exceeding the results obtained when operated with original atmospheric burners. Tables comparing the different arrangements for each section of the appliances are provided in the bulletin.

Satisfactory combustion and ignition with power burners was obtained in each of the experimental installations. The power burner noise level under normal operation was, as would be expected, higher than that experienced with atmospheric burners, but was not considered excessive for commercial in-

stallations. A high of 76.5 decibels for power burners and a low of 44.5 decibels for atmospheric burners was recorded. Generally recognized noise levels place that of private offices at 40 decibels, an average office at 50, an average factory at 60, average street noise at 70 and noisy office at 75 decibels.

Thermal efficiency of the heavy-duty solid-top range section was increased from 64.5 to 80 percent. Time necessary to heat 40 pounds of water from 60° to 200° F after preheating the range was decreased from 15.5 minutes

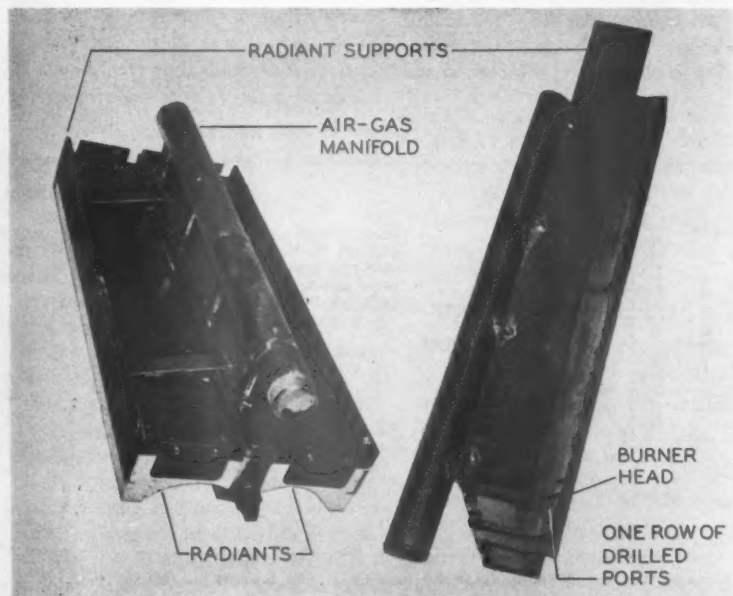
to ten minutes. The heating speed of raising 77 pounds of water over the same temperature rise from a cold start was increased approximately 24 percent with a decrease in preheating time from 45 to 34.25 minutes. Top temperature distribution compared favorably with that attained with atmospheric burners.

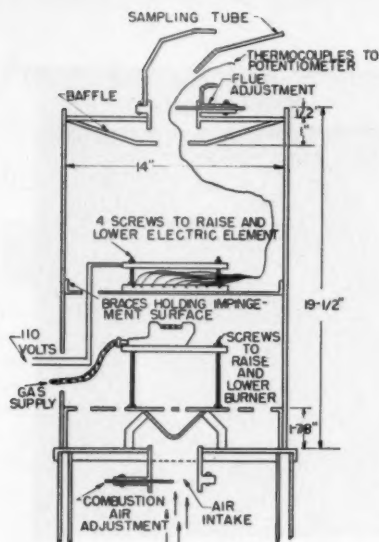
In the heavy-duty range oven section the maintenance rate was reduced from 2,345 Btu per hour per cubic foot of oven space to 1,700 Btu. Oven preheating time was cut from 15.1 to 12.9 minutes. Oven heat distribution compared favorably with that normally attained.

Application of power burners to the heavy-duty unit broiler resulted in a heating speed from a cold start of 2.8 times that of the atmospheric burner. The input rate required to maintain an average temperature of 600° F above room temperature was reduced from 63,000 to 32,000 Btu per hour for the best power burner arrangement. Broiler heat distribution compared favorably with that originally obtained.

On the whole, use of power burners seems ultimately feasible and practical. Ignition of power burners on such equipment is one phase that would require additional experimentation and considerable engineering. Present industrial type pilot burners and other ignition methods are not entirely satisfactory for the purpose without modifications. Power burners, it would seem, would permit overall simplified construction of heavy-duty equipment, more economical and improved performance. Perhaps some day ranges and broilers so equipped will

**Figure 4.** Arrangement of ports, radiants and manifold in broiler power burners. Burner radiant sections were placed in about the same relative position as original atmospheric burner radiant section





DESIGN FUNDAMENTALS: Figure 1 at left shows experimental combustion chamber for flame impingement study

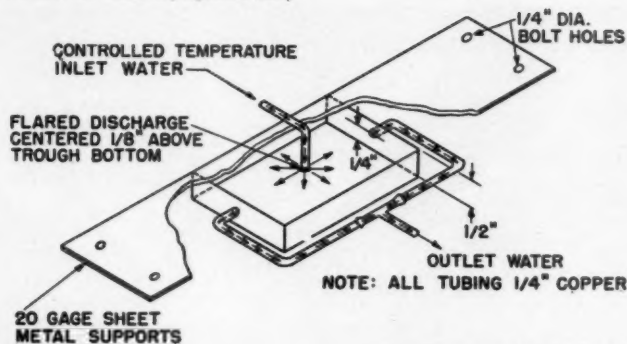


Figure 2. Special controlled-temperature water trough for determining the rate of condensation on metal surface

be an important tool in holding and expanding the heavy duty cooking load.

Research Bulletin 61 is available from American Gas Association Laboratories, 1032 E. 62 Street, Cleveland 3, Ohio. It is priced at one dollar. L. V. Cachat of the Laboratories staff conducted the experimental work and is the author.

## Design fundamentals of compact appliance construction

### a PAR activity

Conservation of combustion space in order to make modern gas appliances as compact as possible, improved thermal efficiency, and increased heating speeds

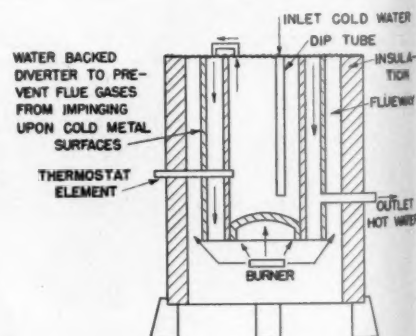
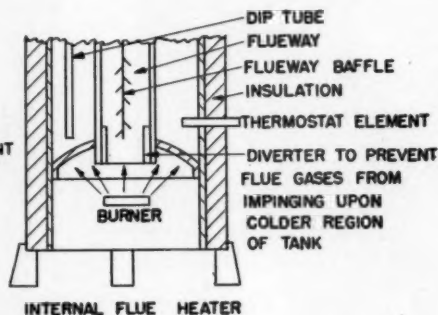
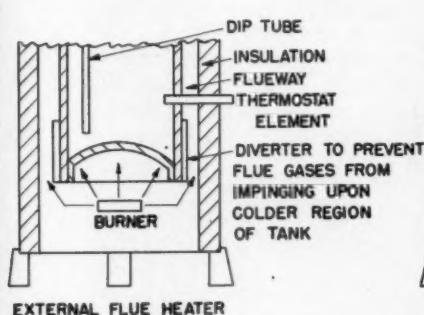
are goals important to the entire gas industry. Fortunately, from a technical standpoint, achievement of all three lie along somewhat parallel design channels.

Recent years have witnessed definite gains and improvements in gas appliances along these lines. Much of what has been accomplished has been done by finding ways and means of successfully bringing burner flames closer to heating surfaces. Still further improvement of this type continues to be an important element of American Gas Association research under the PAR Plan.

It is commonly known in the industry, that no small part of the design relationships involved centers about quickly warming cold heating surfaces to the best advantage. Impingement of flames on cold surfaces for any appreciable time affects two important end points—ability to obtain good combustion and avoidance of condensation.

These two concepts have been studied in detail at A. G. A. Laboratories in the course of research sponsored by the Committee on Domestic Gas Research. The first study, good combustion, is reported in the new Research Bulletin 59, "Investigation of the Effect of Gas Flame Impingement on Combustion Characteristics of Domestic Range Top and Water Heater Burners." The second, minimizing condensation, is reported in Bulletin 58, "Condensation in Gas Water Heaters."

An earlier study was reported in Bulletin 43, "Investigation of Extent of Gas Flame Impingement Allowable for Satisfactory Combustion." It noted that the major factor to be considered, insofar as completeness of combustion is concerned, is the temperature of the impingement surface. That study, however, did not include an analy- (Continued on page 40)



DESIGN FUNDAMENTALS: Figure 3 (left and center) flue gas deflectors employed in external and internal flue heaters to minimize condensation. Figure 4 (right) external flue heater employing water jacket or sections around main storage tank

*Emergency problems and project data will highlight national conference*

# Accountants complete program

Impact of current events will hold the spotlight at the 1951 National Conference of Electric and Gas Utility Accountants in Chicago, April 23-25. The program has been designed to cover an unusually broad variety of topics so that every utility accountant will profit from the conference.

Final touches to the agenda were completed February 14-16 at joint meetings of the various standing and project committees. Almost 200 members, representatives of Edison Electric Institute and American Gas Association, participated in the planning meetings in Cincinnati. The full program will be available by the first of April. This article will concentrate, therefore, on some of the highlights.

Opening general session on Monday afternoon will start things off on a high level indeed. Three utility company presidents will bring worthwhile messages. Wait 'till you see that lineup!

Want to know what the utility industry is thinking and doing about the preservation of records against bombing? Like to hear the latest on the major revision to the Uniform System of Accounts? Then attend the General Accounting Committee meeting on Tuesday afternoon.

## Depreciation requirements

Would you like to hear about adapting plant accounting records to depreciation study requirements? Then plan to attend the joint meeting of the Property Records and Depreciation Committees on Wednesday morning. A speaker from Arthur Andersen & Company will discuss this subject.

Are you interested in internal auditing problems and answers? The Internal Auditing Committee has a wealth of material, so much that it is tough to say any particular report is a highlight.

For genuine all-around interest, you might select the panel discussion on Tuesday afternoon, "Internal Auditing Shop Talk."

The kind of an economy and the seriousness of the times we are living in naturally bring the subject of material control to mind. The Materials and Supplies Committee will attempt to clarify various problems during their panel discussion on material control on Tuesday afternoon. Three phases will be explained thoroughly—Accounting, Purchasing and Re-ordering.

## Bring tax questions

Taxes are on everybody's mind today. Stop thinking of your personal taxes long enough on Wednesday morning to listen to a discussion of the excess profits tax as presented by the Taxation Committee. This should be an enlightening and valuable session. Bring your tax questions to this meeting. Time will be allowed to discuss them with the committee.

An unusual feature presentation will be made on Wednesday morning. The joint Customer Activities Committees, all three of them, will collaborate to present six speakers on the subject of "Monthly Billing vs Other Billing." This should be of outstanding interest in view of the manpower and equipment situation.

Customer Activities Committee luncheons on Tuesday will highlight the rest of the sessions for the Customer Activities group. Each committee will hold a luncheon that will develop into an afternoon meeting of real interest. The Customer Accounting Committee is being pretty cagey again and is just announcing "innovations." The Customer Relations Committee will reveal further developments in their major project on training by films and manu-

als. The Customer Collections Committee will have outside speakers and show films on drive-in pay stations, as well as discuss mobile pay stations.

The Accounting Employee Relations Committee will be in the magnanimous position of distributing their highlights at several meetings during the three days of the conference. You can hear their worthwhile contributions at either the general session on Monday afternoon, the General Accounting meeting on Tuesday morning, or the Customer Activities meeting on Wednesday morning.

Special plans have been made for entertainment of the ladies, including a visit to Marshall Fields. Of course, the Tuesday night banquet for both the ladies and men will be gay with music and food. There will be a speech too—but you won't have to take any notes.

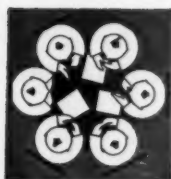
These are only a few of the reports and papers that will be presented. Don't fail to study the full program when you get it. Even more important, plan to attend and gain the latest information on accountancy.

## "Uniform System of Accounts" drafted

A TENTATIVE DRAFT of "Uniform System of Accounts for Electric Utilities," prepared by Committee on Accounts and Statistics of the National Association of Railroad and Utilities Commissioners, has been made available for review by interested parties. American Gas Association and Edison Electric Institute have formed a joint committee to study the effect these changes will have on the utility industry. Complimentary copies of the draft have been sent to member companies for comment.

Additional copies of the 152-page tentative draft, 8½ by 11 inches in size, may be obtained by writing to American Gas Association, 420 Lexington Avenue, New York 17, N. Y. Price is three dollars a copy to member companies and five dollars to non-members.





# Industrial relations round-table

Prepared by  
A. G. A. Personnel Committee,

Edited by Bernard H. Kinzer

● **Employee relations show steady gains**—Employee relations practices are making progress in eliminating the gulf between employers and employees, National Association of Manufacturers reported recently in a "Case Book of Employee Communications in Action."

The association said the breach, which is an "unwanted by-product of industrial growth," has been narrowed by dealing with employees as individuals rather than in the mass. Employee relations practices, it was held, should recognize the "human dignity" of workers.

During the past three years the association, working with affiliates of National Industrial Council, has conducted more than 300 "communications clinics" in all parts of the country and has gathered information from hundreds of companies, large and small, on what they are doing to establish closer understanding with employees.

The 32-page book details the experiences of about 200 representative companies and is a "cross-section of manufacturing industry's experience in developing successful in-plant information programs," NAM said.

The publication lists four general types of information which surveys have shown are of interest to employees. The book describes these as information about the company, its operations, products and prospects; information about company policies and practices affecting people and their jobs; information relating to special situations which arise in the plant, and information about the relationship of the employee to our economic system in terms of the company for which he works.

The booklet reminds employers that the best method for better communications between themselves and their employees is oral face-to-face meetings. It emphasizes that the supervisor is a key communicator and that employees need to see and hear their company heads from time to time.

● **Reporting work of personnel department**—The greatest handicap a personnel executive can work under today is to be responsible to a management that is uninformed on what is going on in its own Personnel Department and in the broad field of industrial relations. This is one of the points made in a speech before California Personnel Management Association by Dale Yoder, professor of economics and director of industrial relations center, University of Minnesota. Professor Yoder believes that a continuing audit can be of great value to both top management and to personnel executives.

The stenographic brief of Professor

Yoder's speech (Management Report No. 33, Calif. Personnel Management Assn. \$1.00) emphasizes preparation of the report, what to report, how to present the report, and expanding and evaluating the report for company managements. It states in part:

"Not being adequately informed about developments in the field is a serious handicap to management with the result that though they may know what goes on in their own plant, they are not in the position to cast that up against a background, . . . a real background . . . and understand what the personnel department is up against. . . ."

"It seems to me, that much of what goes on outside of our own plants need to be interpreted through the eyes of experts to our top management people. You can't just depend upon the newspapers, the rumors, and stories to give them an adequate picture of what is taking place outside. I think you personnel men have a responsibility for broader reporting than the reporting of your own activity. . . ."

"What do you report? I have already indicated that I think you ought to report on a somewhat broader base than merely the activities of your department. Then next you may turn to the internal activities: What do you think ought to be reported? I should say report on every function you perform. Simply cover the entire range of activities."

● **Management factors affecting absenteeism**—A number of popularly held notions are contradicted in an article (*Harvard Business Review*, 9-50) based on a study of the absenteeism problem of a large plant. The author, who made the study, is Bernard J. Canner, assistant professor in the School of Civic and Business Administration, City College of N. Y. He describes the method used in making his study and illustrates findings with charts and figures.

Examples of factors found not to be related to absenteeism are percentage of women and average age of work group; factors found to be related include quality of supervision and size of departments.

Perhaps the main implication of the present study is that when any management attempts to reduce or prevent absenteeism, it should focus the spotlight on itself as well as on its workers. The two factors that appeared to be most closely associated with absenteeism—size of department and quality of supervision—are ones that management can do something about through planning, selection, and training. Apparently, the larger the department, the greater the need for skilled supervision. . . .

Absenteeism can be either management-centered (quality of supervision, size of department, nature of work, etc.) or worker-centered (sickness, transportation difficulties, etc.). These centers should not be considered unrelated, however. Even when the

precipitating factor in absenteeism is worker-centered, the severity of the effect (frequency and duration of absence) may be influenced considerably by management-centered factors.

● **AFL economist takes negative view on profit-sharing**—Reasons why labor leaders have been reluctant to accept the idea of profit-sharing were analyzed by Peter Henle, assistant economist, American Federation of Labor, in a recent issue of *American Federationist*. He summarized his points as follows:

(1) In many cases profit-sharing is still being used by employers who wish to divert the attention of their workers from a union organizing campaign.

(2) In other cases, even though the employer concerned may be very well intentioned, and even though collective bargaining may have been established in the plant, a profit-sharing plan may easily cause trouble. It is likely to undermine collective bargaining as the principal method for determining employees' compensation. Emphasis will be placed not upon attaining a high basic wage rate, but upon the size of the profit-sharing bonus.

(3) If the employer suggests a plan of the "deferred distribution" type, this is likely to prove unsatisfactory both as a profit-sharing device and as a pension plan. The worker cannot obtain his share of the profits until he is ready to retire, but even under these circumstances the plan can yield only an unpredictable and unsatisfactory pension.

● **Hiring**—Want to attract more good workers? Try dressing up your employment application.

First impressions count—especially these days when employers are trying every gimmick in the book to attract job applicants. Wooing of the potential worker is taking many forms—from such elaborate innovations as television in the employment office to coffee for the "waiters."

One technique that avoids the extremes but does a good job in helping to create a good impression of the company among work seekers is to dress up the application blank.

Scott Paper Company has designed the last word in eye-appealing personnel forms according to National Foremen's Institute. The application blank is a four pager, with the cover devoted exclusively to a montage of company products and personnel. The form contains additional material to impress the applicant. It includes a brief history of the company, a map of its various plants throughout the country, and brief paragraphs on expansion opportunities for company workers.

A colorful application blank can be used also as a good recruitment device. You might distribute the applications among your present work force with the suggestion that they give them to members of their immediate families or friends and relatives. It's bound to attract attention, and at a relatively low cost.

(Continued on page 48)



# What's ahead for industrial & commercial?



The Shoreham Hotel in Washington, D. C.—headquarters for the Association's 1951 Sales Conference on Industrial and Commercial Gas

**W**hat opportunities and problems lie ahead for the gas industry? For the industrial gas man? For the commercial gas man?

Up-to-the-minute answers to these questions will be supplied next month at the Association's 1951 Sales Conference on Industrial and Commercial Gas—the only national meeting of its kind. Washington, D. C. has been selected as the location for this three-day event, April 2-4.

Opening day of the conference has been designated as Commercial Gas Day. Five major presentations have been scheduled on the advance program.

Donald E. Dillon, The Brooklyn Union Gas Co., will open the session with a talk on water heating for commercial establishments in both the volume food service and non-cooking fields. Mr. Dillon is an experienced gas man who has been close to all types of commercial gas installations.

Second feature address will be a talk by L. J. Fretwell, chief commercial engineer, Oklahoma Natural Gas Co., Tulsa, entitled "It's Good!" Mr. Fretwell will discuss the advantages of gas and heavy-duty gas cooking equipment for all commercial cooking.

He will be followed by "Bob" Wilson, secretary, Washington Restaurant Association. This straight-from-the-shoulder talk is expected to provide valuable pointers on improving relations with local restaurant associations.

A fourth address on the program will

discuss the importance of good appliance servicing and the type of service required. A well-known commercial gas man who has devoted many years to heavy-duty appliance servicing will be the speaker. He will dwell at length on the need for keeping appliances in top condition in view of approaching materials shortages. The talk will tie-in with the Industrial & Commercial Gas Section's current "Keep 'Em Cooking with Gas" campaign.

Members of the Association's Promotion Bureau will bring the Commercial Gas Day to a close with a workshop presentation for dramatizing commercial gas cooking.

## Mass feeding

Industrial and commercial gas men are expected to turn out in large numbers for the general session on Tuesday. E. J. Boothby, president, Washington Gas Light Co., will act as host and greet the delegates.

Lead-off talk will tell how the gas industry can help to improve mass feeding operations. This is a particularly timely subject in view of the need for ever larger volume food service due to increasing defense, and other governmental activities. George L. Anderson, Quartermaster Corps, Military Planning Division, Research and Development Branch, Department of the Army, has been asked to present the latest factual information on mass feeding.

Another top subject in the present

emergency is how to sell to government agencies or deal with procurement offices. Gas companies throughout the country may be called upon at some time or other to render service to governmental agencies. Consequently, it is almost impossible to overemphasize the importance of this topic. Two experts who have continuous dealings with the government have been asked to make the presentation. William R. Loving is manager of the government division, Washington Gas Light Company. James R. Lee is manager of the Washington office, Gas Appliance Manufacturers Association.

The following three speakers will give their audience a glimpse of future trends and competition. Willard F. Rockwell, chairman of the board, Rockwell Manufacturing Co., Pittsburgh, will discuss the broad picture—what's ahead for America?

D. A. Hulcy, president of American Gas Association, will paint a comprehensive picture of the gas industry's immediate future. His inspirational remarks are expected to help spur industrial and commercial gas men on to important new accomplishments.

A third prominent figure, Frank H. Adams, president, Surface Combustion Corp., Toledo, Ohio, will describe what's ahead in the industrial gas field.

Competition and more competition is the forecast! One of the first requirements for meeting that competition is to understand our competitors and what

their equipment can and cannot do. C. George Segeler, A. G. A. utilization engineer, will supply these facts and figures developed by studies of competitive services.

Wednesday of the conference has been set aside as Industrial Gas Day. Industrial gas utilization is linked more closely to defense production than any other phase of the gas industry. Intense interest is expected in the six major topics, each of which is directly concerned with defense production.

Heading the agenda is the subject of

radiant heat in the glass industry. Many defense items are made of glass. Robert C. LeMay, Selas Corp. of America, Philadelphia, will discuss a rather new application in this field.

A speaker representing Public Service Electric & Gas Co., Newark, N. J., will tell the delegates why a commercial heat treating company prefers gas. The importance of this subject is indicated by the fact that every industrial community has one or more commercial heat treaters.

Stewart C. Parker, The Peoples Gas Light & Coke Co., Chicago, has con-

ducted intensive studies on several industrial gas subjects. His "Gas Versus Induction Heating" report presented a strong case for gas. Mr. Parker will elaborate on the findings of that study as they apply to use of gas for melting die cast metals. His address also will discuss comparative costs.

What are the latest developments in the air heater field? Not all industrial processing requires high temperatures. There probably are as many processing and finishing operations within the lower temperature ranges of air heaters as there are for the higher temperature ranges. Oscar Byron, J. O. Ross Engineering Co., will describe applications of this efficient method of direct and indirect heating by air as applied in the industrial field.

Another authority, J. P. Leinroth, sales manager, gas department, Public Service Electric & Gas Co., will outline the responsibilities of industrial gas men in the national emergency. With defense production spreading to all corners of the country, this subject has soared in importance. It will continue to grow in stature during the months ahead.

That word "competition" creeps in again! A highly competitive field—heat treating of steel—will be examined with a comparison of gas and induction methods. Dr. Horace J. Grover, Battelle Memorial Institute, Columbus, Ohio, will supply basic data that should give his audience a clearer understanding of the job that gas can do in this field.

Further details on the conference program will be mailed to all members of the Section early this month. The conference will be so designed as to provide a clear picture of the gas industry's important role in the over-all defense program. Industrial and commercial gas men will find a storehouse of helpful information that they can pass on to their customers.

## Gas vs. electric cooking skit popular



Fred Kaiser, vice-president, Detroit-Michigan Stove Co., and a professional model presenting popular "Mr. Flameless and Mrs. Flame" demonstration at Michigan Restaurant & Caterers Association dinner. Nearly 250 persons attended the demonstration, including management of Detroit's leading restaurants, hotels, hospitals, clubs and board of education. Event was sponsored by Michigan Consolidated Gas Company and the range company. Member companies that wish to use the demonstration to counteract competitive shows should contact A. G. A. Industrial & Commercial Gas Section

## A.G.A. pushing deep fat fryer project



Research Engineer Richard L. Stone (far right), A. G. A. Laboratories, showing members of Committee on Industrial & Commercial Gas Research the quick speed and fast heat recovery of experimental deep fat fryer. Improvement of heat application to deep fat fryers is a PAR Plan project. Apparatus at left is used to test qualities of frying fats, particularly temperature and other conditions that cause breakdown in use. Members of the committee, of which Franklin T. Rainey, Knoxville, Tenn., is chairman, are sampling French fried potatoes prepared in record time by Mr. Stone

## Humorous approach

Humor can be an effective sales approach, reports The Gas Company in Scranton, Pennsylvania. Witness the following "Personals" which the company placed in a recent copy of a local newspaper:

"Margie: Please come back home. All is forgiven. I've even had a new Roper Automatic Gas Range installed.—Hubby."

"Purely, Purely Personal: If those new chlorophyll tablets and Life Buoy Soap don't do the trick, try bathing in water heated by an A. O. Smith Permagas Gas Water Heater."

"Rich Gentleman dying of hunger. Would appreciate a good meal prepared on one of those new, modern, automatic Caloric Gas Ranges."

# Memphis conference next stop



Some of the A. G. A. chairmen who will play leading roles in the 1951 Distribution, Motor Vehicles and Corrosion Conference, April 16-18: (Left to right) V. F. Bittner, Distribution Committee; A. H. Cramer, Corrosion Committee; L. M. Harris, Subcommittee on Construction and Maintenance, and G. E. Griffin, Subcommittee on Meters and Metering

Latest methods for conservation of men and equipment in the present emergency will keynote the 1951 Distribution, Motor Vehicles and Corrosion Conference.

The theme will be woven into the four general sessions, numerous luncheon conferences and special committee meetings. As a new feature, one complete general session will be devoted to safety and accident prevention topics. The conference will be held this year on April 16, 17, and 18 at the Hotel Peabody in Memphis.

V. F. Bittner, The Peoples Gas Light & Coke Co., Chicago, Distribution Committee chairman, will open Monday's general session. Following greetings by Major Thomas H. Allen, president, Memphis Light, Gas & Water Division, H. Carl Wolf will deliver a short message from American Gas Association, entitled "The Shape of Things to Come."

Clyde McGraw, vice-president of operations, Transcontinental Gas Pipe Line Corp., Houston, will explain "Why We Incorporated a Corrosion Control Program in the Early Phases of Construction." Harold W. Richardson, editor, *Construction Methods and Equipment*, McGraw-Hill Publishing Co., is scheduled to speak on "Saving Man-Hours with Construction Equipment."

Feature of the morning session will be a panel discussion on industrial relations led by J. J. Novy, assistant to vice-president, The Peoples Gas Light & Coke Co., Chicago. Panel members will be L. J. Eck, vice-president, Minneapolis Gas Co.; J. E. Heyke, Jr., vice-president, The Brooklyn Union Gas Co.; Alfred Hirsch, vice-president, Laclede Gas Co., St. Louis, Mo., and H. B. Noyes, vice-president, Washington Gas Light Co.

Six luncheon conferences on Monday will be devoted to the particular problems of the various operating groups. A. H. Cramer, Michigan-Wisconsin Pipe Line Co., Detroit, and chairman of the Corrosion Committee, will preside at the luncheon and round-table discussion of general corrosion problems. A. D. Simpson, Jr., United Gas Corp., Houston, is vice-chairman of the group. Discussion leaders include S. E. Trouard, New Orleans Public Service Inc.; N. P. Peifer, The Manufacturers Light & Heat Co., Pittsburgh; A. L. Stegner, Tennessee Gas Transmission Co.; W. J. Schreiner, The Cincinnati Gas & Electric Co.; M. C. Miller, Ebasco Services, Inc., New York, and O. C. Roddey, Interstate Natural Gas Co., Monroe, Louisiana.

The Distribution, Design and Development Subcommittee, with Chairman H. G. Howell, Memphis Light, Gas &

Water Division, presiding, will also hold a panel discussion. Karl E. Schmidt, Michigan Consolidated Gas Co., Detroit, is vice-chairman. Subjects will be based on papers presented by several members. These include "Sectionalizing Distribution System Prior to Change-Over to Natural Gas" by C. C. Barr, Consolidated Gas Electric Light & Power Co. of Baltimore; "Forecasting of Daily Loads and Maximum Hours within a Distribution System" by S. J. Steger, Memphis Light, Gas & Water Division; a digest of "Diversity Factors Used in the Gas Industry" by G. D. Mock, Washington Gas Light Co.; "Average Customer's Maximum Hourly Rate as Related to Space Heating Saturation" by W. P. Dick, Columbia Engineering Corp., and W. J. Goffe, Equitable Gas Co., Pittsburgh.

The panel discussion will be led by Moderator G. G. Ellerbrock, Wisconsin Public Service Corp., Oshkosh. Panel members are S. J. Steger, W. P. Dick, and W. J. Goffe.

The Construction and Maintenance Subcommittee will meet with Chairman L. M. Harris, Public Service Electric & Gas Co., Newark, N. J., presiding. Group vice-chairman is F. H. Bunnell, Consumers Power Co., Jackson, Michigan. Discussion topics include repair of leaking bell and spigot joints by use



of plastics and tapes; odorization as it affects street leak detection; leakage surveys and periodic inspections; safe practices; reconditioning steel pipe in place; training of street department employees in installing bell joint clamps.

Meters and Metering men will discuss acceptance tests for new meters, diaphragm materials, meter valves, change-over problems, capacity testing, repairing leaks in the field, and manufacturers' presentations. G. E. Griffin, The Brooklyn Union Gas Co., subcommittee chairman, will preside. He will be assisted by the vice-chairman, Gilbert Estill, Oklahoma Natural Gas Co., Tulsa. Discussion leaders are J. Webb, Consolidated Edison Co. of New York, Inc.; G. G. Dye, Southern California Gas Co.; R. F. Diehl, Laclede Gas Co.; H. Houghton, Michigan Consolidated Gas Co.; F. C.



H. G. Howell, chairman, Subcommittee on Distribution Design & Development

Morey, Consolidated Edison Co. of New York, Inc., and W. Menet, The Peoples Gas Light & Coke Company.

The Motor Vehicles luncheon conference sponsored jointly by the American Gas Association and Edison Electric Institute committees, will feature talks on vehicle management, plus a round-table discussion. P. W. Rogers, The Ohio Fuel Gas Co., chairman of the A. G. A. Motor Vehicles Committee, will preside. F. E. Selim, Philgas Division, Phillips Petroleum Corp., will speak on "The Use of LP-Gas for Motor Fuel." H. J. Willet, Jr., vice-president, Willet & Co., Chicago, will discuss "Leasing vs. Company Ownership of Motor Vehicle Fleets" with S. J. Lee, president, Fleet Management Corp., also of Chicago.

Round-table discussion topics include: heaters for line truck crew compartments; heaters to eliminate necessity for leaving motors running; dynamometers vs. motor tune up equipment; experience

with automatic transmissions—cars and future use in trucks; employee owned cars—rates and practices; employee use of company cars—practices; outdoor storage in northern areas.

The Work on Consumers' Premises luncheon, with Chairman M. M. Pears, Equitable Gas Co., presiding, will also be held on Monday. E. F. Hart, Boston Consolidated Gas Co., and C. L. Ruff, Michigan Consolidated Gas Co., will open the session with a discussion of "Safe Practices on Consumers' Premises." Another event will be a talk by C. S. Hazel, The Philadelphia Gas Works Co., on "Balancing Summer and Winter Manpower Requirements." The limits of pressure variation that can be tolerated on appliances will be examined by W. W. Gilliss, Jr., Washington Gas Light Co., and J. Joachim, Michigan Consolidated Gas Company.

Second general session will be held on Tuesday morning. I. S. Webster, Public Service Electric & Gas Co., will be the first speaker on "Equipment and Procedure for Service Renewal with Soft Copper Tube." A discussion of "Service Training Kits" will follow. Participants in the discussion include J. MacLarty, supervisor of training, Rochester Gas & Electric Corp.; G. B. Johnson, manager of customer service, Minneapolis Gas Co., and W. C. Peters, assistant gas distribution engineer, Northern States Power Co., St. Paul, Minnesota.

A. B. Lauderbaugh, chief gas engineer, The Manufacturers Light & Heat Co., Pittsburgh, will then present a study, "Principles of Orifice Metering." His talk will be followed by a discussion of "Gas Distribution Problems Solved by Electric Network Calculators." Speakers are John P. Clennon and James K. Dawson, both of The Peoples Gas Light & Coke Co., Chicago.

Separate morning conferences for the Corrosion and Motor Vehicles Committees also are scheduled for Tuesday morning. Chairman A. H. Cramer will preside at the Corrosion Conference. Opening event will be a discussion by C. W. Shupp, assistant research engineer, and Guy Corfield, research engineer, Southern California Gas Company. Their subject will be "Long-Time Performance of Pipeline Coatings." R. L. Featherly, cathodic protection engineer, Dow Chemical Co., Midland, Mich., will follow with "Practical Experiences in Hot Water Tank Corrosion." "The Performance of Impressed Current Ground

Beds" by A. W. Peabody, Ebasco Services, Inc., and a discussion of "The Mechanism of Cathodic Protection" by K. K. Reid and G. C. English, Aluminum Co. of America, will complete the Tuesday Corrosion conference.

The Motor Vehicles Committee of A. G. A. and EEI also will hold a joint meeting on Tuesday morning. The entire meeting will be devoted to a panel discussion of group problems. Topics include advantages and disadvantages of single-make fleets; economies of snow tires vs. chains; selection of proper tread design and tire life; control of parts inventories by adequate dealer stocks, and other subjects. Linn Edsall, Philadelphia Electric Co., will act as moderator. Panel members include E. P. Burden, Consolidated Edison Co. of New York, Inc.; W. W. McCartney, The East Ohio Gas Co., Cleveland, and Don Wilson, Niagara Mohawk Power Corp., Syracuse.

## Tuesday conferences

The six luncheon conference groups will meet again at 12:30 on Tuesday. A. D. Simpson, Jr., United Gas Corp., Houston, vice-chairman, will preside at the Corrosion luncheon. Feature will be a panel discussion of corrosion instrumentation, with M. C. Miller, Ebasco Services, Inc., as coordinator.

The Distribution Design and Development Luncheon Conference will open with a discussion of "Gas Cleaning Media for Filtering Dust at Regulating Stations" by C. A. Brown, superintendent of gas distribution, Rochester Gas & Electric Corporation. His talk will be followed by "Further Developments in the Detroit Story of Increasing System Capacities to Handle 150,000 Additional Heating Customers" by J. C. Taylor, Michigan Consolidated Gas Company.

G. A. S. Cooper, Public Service Electric & Gas Co., will discuss "Safe Practices in Distribution Design and Development," to be followed by a demonstration of the electric network calculator. The last talk on the Distribution Design and Development agenda is "Practices of Pressure Regulation Covering Services, Dual Regulation and Pressure Relief Devices" by Donald Miller, Public Service Co. of Colorado, Denver. Material presented at this meeting will be discussed by a panel with Cecil Wray, chief engineer, Nashville Gas & Heating Co., as moderator. Panel members include William Beard, Ebasco Services, Inc.; Harold Frahm, (Continued on page 41)





J. E. Walsh, Omaha, Neb., chairman of A. G. A. Mid-West Regional Sales Conference



A. E. Hatley one of two vice-chairmen for the twenty-fifth Mid-West Sales Conference



George D. Wells, conference vice-chairman. Attendance of more than 500 is expected

## Mid-west conference to appraise sales picture

Where do we go from here? More than 500 gas company sales managers and sales executives from 11 Midwestern states will find the answer in Chicago next month. The complete sales picture will be reappraised during the twenty-fifth annual Mid-West Regional Gas Sales Conference at the Edgewater Beach Hotel, April 9-11.

This conference is sponsored by the Association's Residential Gas Section and is one of the most important meetings of the year. J. E. Walsh, director of sales, Metropolitan Utilities District, Omaha, Neb., is conference chairman. Assistant chairmen are A. E. Hatley, general sales manager, Central Indiana Gas Co., and George D. Wells, new business manager, The Gas Service Co., Topeka, Kansas.

Keynoter of the conference will be D. A. Hulcy, president of American Gas Association, and president, Lone Star Gas Company. Mr. Hulcy will give a dynamic appraisal of the gas industry's current position and the major problems that confront sales managements.

Other features will be "keyed to the times" presentations on domestic gas appliances. Gas cooking—the life-line of the domestic load—will be discussed by two authorities. Pierre Vinet, director of sales promotion, Geo. D. Roper Corp., Rockford, Ill., will present an inspirational message on this subject. Using the title "Seeing Is Believing—If You Still Have Your Senses," Marshall Batchelder, Caloric Stove Corp., Philadelphia, will present a one-act drama on the plus values of the modern gas range.

No regional meeting would be complete without first-hand coverage of

the Association's general promotional program for 1951. A. G. A. staff members will outline the careful analysis, geographic workability and consumer stimulation angles of the new program.

There is an interesting story on how the gas refrigerator has energized retail salesmanship and secured public acceptance. Albert E. Lee, regional manager, Servel, Inc., Evansville, will discuss "Selling Gas Refrigeration in the Multiple Housing Market." His talk will be a careful analysis of the immediate future for gas refrigeration.

"We Too Are in an Emergency." This title has been selected for the address by W. L. Hayes, general sales manager, Montana-Dakota Utilities Co., Minneapolis, Minnesota. Well known to Mid-West conference audiences, Mr. Hayes will discuss successful selling under trying conditions.

Walter H. Kurdelski, residential sales manager, Michigan Consolidated Gas Co., Grand Rapids, chairman, A. G. A. Gas Laundry Equipment Committee, will present a paper on the profit opportunities of the modern automatic gas clothes dryer.

Four additional presentations are planned on gas industry topics, including one on home service.

Already signed up as an "out of industry speaker" is Paul Harvey, well-known news commentator. Mr. Harvey is noted throughout the Midwest for his news broadcasts and succinct observations on "what makes people tick." His talk will add zest and interest to the council's silver jubilee program.

## Central heating requirements revised



Subcommittee on Approval Requirements for Central Heating Gas Appliances meeting at A. G. A. Laboratories on January 12. Dr. F. E. Vandaveer, chairman of the group, is shown at head of table. Extensive revision of requirements for central heating gas appliances has been completed by the subcommittee. Adoption of the new text is expected at March meeting of Approval Requirements Committee.

Extensive revision of requirements for central heating gas appliances has been completed by an approval requirements subcommittee of American Gas Association. The work is designed to spur development of even better gas appliances in the rapidly expanding gas house heating field.

Adoption of the new text is expected at the March meeting of the A. G. A. Approval Requirements Committee. Subsequently, revised central heating standards will be published in four parts: Volume I, "Steam and Hot Water Boilers;" Volume II, "Gravity and Forced Air Furnaces;" Volume III, "Gravity and Fan Type Floor Furnaces;" and Volume IV, "Gravity and Fan Type Recessed Heaters."

The present text on central heating appliances runs to 128 pages with numerous cross-references and two addenda. The new arrangement is designed to expedite use of the standards by grouping provisions relating to each specific appliance.

Dr. F. E. Vandaveer, director of laboratories, The East Ohio Gas Co., is chairman of the subcommittee responsible for central heating requirements. The group has worked arduously to complete the required changes. It has also been very active in formulating additions to cover more adequately the recent trends in the central heating field (i.e., expanding use of compact equipment that is automatically controlled and that

often requires advanced electrical and mechanical components).

Additions formulated by the subcommittee include standards and test methods for gas-fired boilers and furnaces for confined installations. Completely new individual requirements for recessed wall heaters have been included under central heating standards. New electric leakage and insulation tests also have been adopted.

Modern heating installations in confined spaces require detailed attention to safety precautions such as permissible wall and ceiling clearances. One particularly new development is that recessed wall heaters have been redesigned for higher heating inputs for central heating instead of space heating application, and have become a definite part of the dwelling structure. It is vitally important, therefore, that the heaters be vent-connected. In addition, they must comply with rigid tests of heating elements as well as comparable construction and performance features, such as are required of other types of central heating appliances.

Manufacturer and utility members of the subcommittee from all parts of the United States participated in the drafting of these expanded requirements. Numerous meetings, including many two days or more in duration, were held in various locations. Cleveland and Los Angeles working groups participated extensively in preparing much of the preliminary material.

## A.G.A. publishes four research works

### a PAR activity

Studies in the domestic gas, mixed gas, and industrial and commercial gas fields are reported in four new research publications released by American Gas Association Laboratories. All four reports cover work completed under the PAR Program.

Two of the publications are devoted to general utilization studies under the domestic gas research program. These are Research Bulletin 59, "Investigation of the Effect of Gas Flame Impingement on Combustion Characteristics of Domestic Range Top and Water Heater Burners," and Report 1167, "A Study of Large Single Port Atmospheric Gas

Burners—Flashback Characteristics on Ignition."

Bulletin 59 covers the effects of flame impingement on horizontal surfaces when burning natural, mixed and manufactured gases, using contemporary range giant burners and water heater burners. It extends the work previously reported in Bulletin 43, "Investigation of Extent of Gas Flame Impingement Allowable for Satisfactory Combustion." (See article in this issue of the MONTHLY).

Report 1167 represents an initial attack on design problems associated with large single-port atmospheric gas burners. Previous burner research was concerned primarily with obtaining fundamental information on the design of

multiple port burners. This report deals with the major factors affecting flashback on ignition. It is the first A. G. A. research report on this new and popular type of gas burner.

Devoted to mixed gas, Research Bulletin 60, "Summary Bulletin, Inter-changeability of Various Fuel Gases with Manufactured Gases," summarizes the findings presented in four individual progress reports previously published. Prepared in convenient handbook form, it presents data on the composition and performance of various mixtures interchangeable with six base manufactured gases. A more complete review of this bulletin appears in the February Monthly on page 16. (Continued on page 42)

# Industry news

## A.G.A. Convention reduced to three days

AMERICAN GAS ASSOCIATION'S thirty-third Annual Convention will be reduced from four days, as originally planned, to three days in order to help conserve funds and manpower during the present emergency. The Convention will be held in St. Louis, Mo., Monday through Wednesday, October 15-17 inclusive. Headquarters for the Association, Convention registration and as many meetings as possible will be located in the Kiel Auditorium.

Robert W. Otto, president, Laclede Gas Co., St. Louis, and chairman, A. G. A. General Convention Committee, reports that material progress in planning for the Convention was made at a recent meeting in St. Louis. Arrangements for accommodations have been made with a number of hotels within reasonable taxi distance of the auditorium. The committee has assigned the Statler Hotel as headquarters

for the Accounting Section, the Jefferson Hotel as headquarters for the Residential Gas and the Industrial and Commercial Gas Sections. The Mayfair and Lennox Hotels will be headquarters for the Operating Section.

The St. Louis Convention Bureau has established a Housing Bureau to handle requests for reservations. A form will be approved by the Committee to be filed with the Housing Bureau on a first come, first served basis. Registration fee will be \$10. Last year's successful plan under which advance registration can be made with A. G. A. Headquarters, will be in effect again this year.

The joint meeting of the Natural and Manufactured Gas Departments and the General Sessions meetings will be held at the Kiel Auditorium. General Sessions will be held each of the three mornings, with possibly two addresses on Monday and three each on Tuesday and Wednesday mornings. Negotiations are under way to secure prominent speakers for each of the general sessions.

Each of the four A. G. A. Sections has been requested to hold not more than two meetings. Each Section will have an opportunity to submit several subjects and speakers for selection by the General Committee for general sessions programs. An employee relations session will be conducted at the Convention, sponsored by the A. G. A. Personnel Committee. The Convention Committee also approved the possibility of holding an Accident Prevention session. In addition, a luncheon meeting of corporate secretaries of the gas utility industry will be held at the Convention. The Home Service Breakfast will be held at the Jefferson Hotel with the date and speakers to be announced later.

The Entertainment Committee is preparing

a program that will include the President's Reception and musical entertainment on Monday evening with the customary party for the ladies on Tuesday afternoon at the Chase Hotel. The Committee has accepted the offer of Laclede Gas Company to make bus service available between the Auditorium and principal hotels should such service be advisable.

As chairman of the General Convention Committee and president of the local gas utility company, Mr. Otto is urging members of the Association to attend the thirty-third Annual Convention. Everything possible is being done to make the convention in St. Louis pleasant and profitable, with thorough discussion of problems arising from the national emergency.

Members of the Association are urged to file applications for hotel accommodations as soon as they receive blanks from A. G. A.

Serving with Mr. Otto on the General Convention Committee are the following members: R. R. Blackburn, vice-president & secretary, Southern California Gas Co., Los Angeles; Joseph Bowes, president, Oklahoma Natural Gas Co., Tulsa; Dudley B. W. Brown, executive vice-president, Milwaukee Gas Light Co., Milwaukee; A. W. Conover, president, Equitable Gas Co., Pittsburgh, Pa.; John A. Fry, president, Detroit Michigan Stove Co., Detroit; J. F. Merriam, president, Northern Natural Gas Co., Omaha, Neb.; F. X. Mettenet, vice-president, The Peoples Gas Light & Coke Co., Chicago, Ill.; J. J. Quinn, vice-president, Boston Consolidated Gas Co., Boston, Mass.; Arthur Stockstrom, president, American Stove Co., St. Louis, Mo.; George E. Whitwell, vice-president, Philadelphia Electric Co., Philadelphia, Pennsylvania. Kurwin R. Boyes, Convention manager of A. G. A., is secretary of the committee.

## PGA hears need for flexible sales plan

OVER 400 Pennsylvania gas men studied a blueprint for flexible sales strategy to meet threats of competition and material shortages on January 31. Location was mid-winter sales conference of Pennsylvania Gas Association.

The group was challenged to upgrade sales by featuring use of broiler equipment and gas

range flexibility. Pierre Vinet, director of sales promotion, Geo. D. Roper Corp., urged his listeners to "dramatize, actionize and demonstrate" products, as well as to "sell service, sell your company, and maintain your identity" during times of shortage.

John K. Knighton, sales manager, Servel,

Inc., described his firm's 1951 gas refrigerator. Three million dollars have been committed to tool-up for the new line and to revamp some manufacturing processes.

PGA members should adhere to a planned promotional program even in the face of shortages in order to "soften the market" for times of greater supply, advised William Johnson, Harper-Wyman Company. Mr. Johnson also conducted a comparative cooking demonstration of gas and electric ranges.

Ralph L. Towne, national sales promotion manager, Rheem Manufacturing Co., asserted that for the time being, dealers will have all the water heaters they can sell. Gas water heater manufacturers, he noted, will be kept busy by permits for new building obtained just before the government's deadline.

Other speakers were Gordon M. Jones, sales manager, The United Gas Improvement Co., and Gerald C. Marrs, sales manager of The Harrisburg Gas Co., and chairman, PGA sales promotion committee. Luncheon addresses were given by Thomas S. Lever, Jr., vice-president in charge of accounting, The Philadelphia Gas Works Co., and president of PGA; H. Carl Wolf, managing director, A. G. A. and C. P. Burg, president and general manager, Iron Fireman Manufacturing Company.



This attractive new display kitchen is located in the auditorium of The Consumers' Gas Co. of Toronto. Home service staff (left to right) are Patricia Ellison, Barbara McBryde, Marjorie Chandler, director, Rosemary Ballagh and June Thomas. The kitchen was designed and built using suggestions from "Stage Settings Illustrated" and other recent home service publications of American Gas Association



## Gas sales hit alltime high in December

UTILITY SALES of gas to ultimate consumers reached an all-time high of 4,654 million therms in December 1950, an increase of 24.4 percent over 3,741 million therms sold in 1949. The previous high was reached in January 1950 when 4,325 million therms were sold. The Association's index of gas sales on December 31, 1950 stood at 318.4 percent of the 1935-1939 average.

Natural gas sales showed the greatest gain, aggregating 4,316 million therms in December, 1950, an increase of 26.7 percent over

3,407 million therms sold a year earlier. Manufactured gas sales declined 8.1 percent from 220 million therms in December 1949, to 202 million therms in December 1950. Mixed gas sales totaled 135 million therms in December 1950, a rise of 19.7 percent over 113 million therms sold a year earlier. The changes in respective categories are largely influenced by the conversion of several large utilities from the distribution of manufactured to mixed or natural gas.

For the 12 months ended December '31,

1950, utility sales of gas aggregated 41,943 million therms, an increase of 17.6 percent over sales of 35,657 million therms in the previous corresponding cumulative period in 1949. Natural gas sales were up 19.4 percent to total 38,504 million therms for the 12-month period. Manufactured gas sales declined 3.5 percent to 2,154 million therms. Sales of mixed gas were up 8.9 percent to total 1,285 million therms for the 12 months ended December 31, 1950.

## Gas industry backs nationwide kitchen contest

ONE of the largest promotions of home appliances in the industry's history opens this month under the sponsorship of *McCall's* Magazine. Close support for the "My Kitchen" contest is being provided by American Gas Association, member utilities and gas appliance manufacturers.

"Would you like your kitchen redecorated—free?" This question will be posed to the magazine's four million readers in the March issue. Women will be offered 110 cash prizes totaling \$7,500 for the best remodelling plans. There will be two top prizes of \$1,000 plus duplication of the winning plans in the winners' own homes at *McCall's* expense.

In order to compete, each woman must submit an inventory of her present kitchen equipment with complete remodelling plans, specifying new equipment desired by brand and model number. The contest will continue through June and will also be promoted in the April and May issues of *McCall's*.

Designed to appeal to all types of women, the contest will offer special prizes for amateurs, professionals and students. There will also be extra awards in the following classifications: all-gas kitchens, kitchen-laundry combination, kitchen with freezer unit, kitchen with living area, kitchen with dining area, kitchen with hobby and office area, and farm kitchen.

Five or six special mailings on the contest have been prepared by the A. G. A. New Freedom Gas Kitchen Bureau with contest announcements, counter cards, four-color blow-ups and other display materials provided by the magazine. To date more than 50 member gas utilities have received 500 of these publicity kits and signified their intention of tying-in with the contest.

A special four-color A. G. A. advertisement has been scheduled for the March issue of *McCall's* (see inside front cover of the March A. G. A. MONTHLY) together with the names of manufacturers running all-gas advertisements in that issue.

More than 20 prominent gas appliance manufacturers are participating in the contest by offering women special planning material to help them redesign their new kitchens. Scores of other manufacturers are urging retailers to tie-in with the contest by helping women plan their entries.

The Hartford Gas Co., Minneapolis Gas Co., Washington Gas Light Co., Southern California Gas Co., and Public Service Elec-

tric & Gas Co., were among the first member utilities to announce their tie-in plans. A number of gas companies will also award prizes to contestants living in their service areas. Under this "contest-within-a-contest" plan, entries sent to *McCall's* will be judged first in the national contest, will be segregated and judged by area. They then will be sent to the utilities concerned for awarding of prizes on a local basis. This represents the strongest possible tie-in. It will be accompanied by intensive local promotion by each of the sponsoring gas companies.

Results from the new contest are expected to exceed those from a similar contest which the magazine promoted last fall under the title "My Living Room." More than 155,000 entry requests and 188,000 requests for manufacturers' product literature were received as a result of the earlier competition. Kitchens, a top interest subject, are expected to attract even more interest.

After the returns have been tabulated,  $Mc$ .

*Call's* will issue a complete report on gas appliance preferences and present kitchen possessions of American women. This will be a valuable extra service to the gas industry.

Gas appliance manufacturers listed below are offering product literature through the contest entry blank: Blackstone Corp., Caloric Stove Corp., Bendix Home Appliances, Chambers Corp., Cribben & Sexton Co., Detroit-Michigan Stove Co., Estate Stove Co., Evans Products Co., Florence Stove Co., Grand Home Appliance Co., Hamilton Manufacturing Co., Tappan Stove Co., Harwick Stove Co., Kalamazoo Stove and Furnace Co., Maytag, Murray Corp., Norge Division—Borg Warner, Odin Stove Manufacturing Co., Perfection Stove Co., Rheem Manufacturing Co., Geo. D. Roper Corp., Ruud Manufacturing Co.; Servel, Inc.

Full information on how to tie-in with "My Kitchen Contest" (March through June 1951) can be obtained from New Freedom Gas Kitchen Bureau, American Gas Association, 420 Lexington Ave., New York 17, N. Y.

**\$7,500 in cash prizes and**

McCall's will remodel the kitchens of the two first-prize winners absolutely free...108 other prizes.



Perhaps you spend a home dress. There is your place, and yet the  
 you are, you need for it. You might perhaps all part of the room, and  
 some (stronger and lovelier) indoors. There is the interesting, your place  
 in how far a dress is to be, and a woman's hair, with your



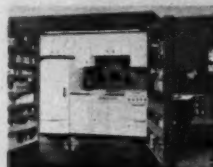
*Perhaps you want a clear window. It's possible if you have a frame house that remembers that the kitchen area should not be neglected. Include all the latest appliances and handy cabinets to speed your meals. In an out-of-the-way corner, you'll want to arrange a collection of plants in the sun window.*



*Proteus* you want a kitchen laundry. Washers along all the available laundry equipment in the market. Decide your own idea for partitioning and layout. Finally choose the special washing system. Develop a color scheme—pink or blue or yellow, the color of your choice.



Perhaps you want an Early American kitchen. Don't let a perfectly efficient work area with integrated sink and range with absolutely perfect examples here, no. There are no in spec. of kitchen building to make a beautiful and cheerful and an early and home in a kitchen in the house.



Perhaps you want a kitchen in a closet. We recently have offered a new-height cabinet cut in. There is importance to be had in a smaller space with subtle arrangements of everything you need to prepare delicious meals. A chemical kitchen makes great sense, as healthy, it will.



**Perhaps you want a kitchen-midwayroom room.** It's a wonderful idea even in a big old-fashioned kitchen. Double the space into work and dining area, and plan. Enable an additional space. Such a craft is built to let the joy and love of the family and a creative solution that

One of two four-color spreads announcing the "My Kitchen" contest in the March issue of McCall's magazine. Contest also will be promoted in the April and May issues. See inside front cover of the Monthly for four-color A. G. A. national advertisement tying-in with the kitchen promotion.

## Gas companies advance on defense front

**Southern California Gas Company**—Employees who may be needed for specific duties in connection with the company's own civil defense organization have been asked not to volunteer for service in local outside defense groups.

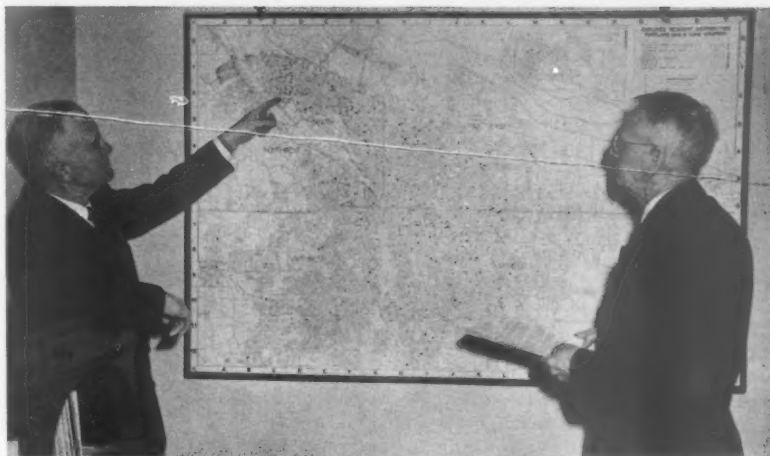
Vice-President H. L. Masser noted recently that Governor Warren has established a Department of Civil Defense, with a state director, that is developing a comprehensive civilian defense plan for the entire state. California has been divided into ten mutual aid regions, each with a regional director. A Governor's Advisory Committee of utility company representatives has been organized for several months. Members of this group, top management executives of gas, water and electric service are keyed in with the general state plan. Robert P. O'Brien of the California Public Utilities Commission is acting director of the utility group. The Gas System Planning Subcommittee is far advanced in tabulating resources of California gas companies in manpower and equipment. It also is establishing procedures for mutual aid in case of a disaster affecting one or more gas companies.

According to Mr. Masser, personnel of utility companies, particularly in the transmission, distribution, customer service, gas dispatching and engineering departments, will be needed to assist in emergency rehabilitation work. Certain other employees would be of service to direct evacuation of buildings and to assist in other tasks in event of a bombing alert. Such employees should refrain from volunteering for service in local defense groups.

The gas company's defense plan is coordinated with the state program and covers aid to damaged areas, employee safety, personnel identification and passes, advice to customers and other necessary measures.

**The Philadelphia Gas Works Company**—(The following article, "Your part in the Prevention of Sabotage," is reprinted from *The P. G. W. News*):

"During the operation of our security and defense plan you probably will be inconven-



Defense map for Portland (Ore.) Gas & Coke Company. Ed Merrill and Ray Glassley of the personnel department are inspecting map on which colored pins represent homes of all company employees. Various colors of the pins indicate the different bureaus and departments. This is but one phase of the utility's soon-to-be-announced civil defense program to meet any critical disturbance of operations

iened by rules and regulations designed to trap or thwart spies, saboteurs, and subversives. Our guard force, as well as others, will be kept informed about special precautions that must be observed and about the importance of vigilance in connection with:

- (1) Detection of trespassers.
- (2) Observance of unusual or suspicious conditions.
- (3) Actions and approaches of strangers.
- (4) Suspicious financial obligations.
- (5) Questions about details of operations.
- (6) Damage to tools or equipment.
- (7) Special protective measures applying to their places of work.

"We cannot emphasize too forcefully the importance of reporting to your immediate supervisor any person whose actions appear to be subversive. You should report also the finding or observing of any condition or practice

that may result in damage to property or injury to fellow workers or others. The prevention and control of fires is extremely important.

"Do not try to evaluate information yourself. An incident that appears to be only a minor detail may be important enough to report, because it may be a link in a chain of evidence that will help break a spy ring.

"Don't play detective! Amateur efforts may spoil a case.

"Be patient! Even if you think government agencies are doing nothing about the information given them. Suspicious persons are kept under surveillance for months until every contact and movement of the suspected are learned.

"Do not spread gossip and rumors, because they injure the innocent and burden the FBI with needless work.

"Do not be unduly suspicious of people with foreign-sounding names! Minority persecution is a breeding ground for Fifth Columnists."

## Gas companies report fewer rate changes

**FEWER** gas rate changes were made in 1949 than in 1948 (87 as compared with 111), according to a report just released by the Association's Rate Committee. However, the majority of these rate changes were increases with the result that there was a somewhat larger dollar amount of net total increase in 1949 than in 1948. Robb Quinby, The Brooklyn Union Gas Co., is chairman of the A. G. A. Rate Committee.

Detailed information on rate changes for 1947, 1948 and 1949, one of the most active periods ratewise in the gas industry's history, has been compiled by a subcommittee of the rate group under chairmanship of F. M. Terry, Consolidated Edison Co. of New York, Inc.

An interesting point brought out by the subcommittee's study is that natural gas companies made considerably more over-all rate increases in 1949 than in the two previous years.

Twenty-nine natural gas companies reported

rate changes in 1949 with an over-all revenue effect amounting to a net increase of about \$14,390,000. On the other hand, 11 natural gas companies reported net revenue increases of about \$3,730,000 in 1948 and 12 natural gas companies reported net revenue increases of only \$1,300,000 in 1947. Included in these figures are two or three companies reporting small decreases.

In 1948 the reported changes in rates of natural gas companies affected only about 7,000 customers with the majority of the net increases going to the larger industrial customers. In 1949 about 2,500,000 customers of all classes were affected, undoubtedly as the result of increased production, operation, and maintenance costs as well as the marked increase in construction cost for new facilities in the latter year.

The number of manufactured gas companies reporting net over-all revenue increases in

1949 showed a marked decline over the number reporting increases in 1948. This was partly because postwar increased costs of doing business had an earlier, and possibly a more severe impact on the manufactured gas companies than on the natural gas utilities. The report shows that 38 manufactured gas companies obtained over-all net increases of about \$20,260,000, affecting about 3,780,000 customers in 1949. In 1948, 75 manufactured gas companies obtained net increases of about \$27,870,000 affecting 3,250,000 customers. In 1947, 26 manufactured gas companies received net increases of \$10,140,000 affecting 2,200,000 customers. Two companies reported over-all decreases of relatively small total amounts in 1949.

Copies of the "Report of Rate Committee" (1950) can be obtained from American Gas Association, 420 Lexington Ave., New York 17, N. Y., at one dollar per copy.

## Varied program scheduled for NEGA meeting

**N**ATURAL GAS topics will command the spotlight when The New England Gas Association convenes at the Hotel Statler in Boston on March 29 and 30 for its twenty-fifth annual meeting. Sherman R. Knapp, The Connecticut Light & Power Co., Hartford, is chairman of this year's program.

Thursday morning sessions will open with election of officers and directors, and the presentation of the annual report by Clark Belden, managing director. The gas industry will be viewed from three vantage-points by industry and association leaders Frederic O. Hess, president, Selas Corp. of America, Philadelphia, and president, GAMA; J. A. Hiller, assistant vice-president, Portland Gas Light Co., and president, NEGA, and D. A. Hulcy, president, Lone Star Gas Co., Dallas, president, A. G. A.

Public Relations, one of the most important aspects of natural gas conversion, will be the theme of Thursday afternoon's address and panel discussion. William P. Woods, president, Conversions and Surveys, Inc., New York, will present the major issues. Gordon G. Howie, Cambridge Gas Light Co., and NEGA first vice-president, will preside as panel chairman.

The following experts will serve on the panel: Donald S. Bittinger, general superintendent, Washington Gas Light Co., Washington, D. C.; Lester J. Eck, vice-president & assistant general manager, Minneapolis Gas Co.; Rutherford Van Vliet, general superintendent, New York and Richmond Gas Co., Staten Island; Henry A. Eddins, vice-president, Laclede Gas Co., St. Louis, and J. Theodore Wolfe, vice-president, Consolidated Gas Electric Light & Power Co. of Baltimore.

Every consideration to insure an effective public relations program during conversion will be discussed. Special emphasis will be placed on ways to put across the advantages of natural gas to employees, customers, the press, public officials, schools, appliance dealers and other influential groups. Problems relating to rates, accident claims, and forced entries into customers' homes also will be featured.

The forum then will be opened for general discussion and questions.

Another full agenda devoted to natural gas is planned for Friday morning. William R. Fraser, assistant to manager of operations, Michigan Consolidated Gas Co., Detroit, will

open the session on "Stand-By Plant Operation and Interchangeability Problems." His address will be followed by a talk, "Planning Your Sales Program with Natural Gas" by Irving K. Peck, vice-president, The Manufacturers Light & Heat Co., Pittsburgh. W. L. Hayes, general sales manager, Montana Dakota Utilities Co., Minneapolis, will close the Friday morning session with the challenge, "Keeping the Public Sold on Gas—an Industry Responsibility."

Recent trends in public, employee and industry thinking will be the theme of the Friday afternoon session. Walter G. Barlow, Opinion Research Corp., Princeton, N. J., has chosen the theme "Trends in Public Opinion." J. French Robinson, chairman, National Defense Committee of American Gas Association, and president, The East Ohio Gas Co., Cleveland, will point out the impact of the emergency on the gas industry in "War Developments of Interest to Utilities." Employee opinion and thinking will be the topic of Douglass V. Brown's talk. Mr. Brown is Alfred P. Sloan professor of industrial management at MIT. A discussion period will follow until the close of the session.

## A.G.A. announces February '51 publications

**L**ISTED BELOW are American Gas Association publications published in February up to the time the MONTHLY went to press. Information shown in parentheses indicates the audience for which each publication is designed. "PAR" means "financed under American Gas Association's Promotion, Advertising and Research Program."

### A. G. A. Laboratories

- American Standard Installation of Gas Piping and Gas Appliances in Buildings (for utilities, manufacturers, plumbers, installers, code and building officials, etc.). Available from A. G. A. Laboratories, 1032 East 62 St., Cleveland; 25 cents a copy.

- Research Report 1170, Study of Burner Flexibility on Various Base and Peak Load Gases (utilities and manufacturers). Available from A. G. A. Laboratories; 50 cents a copy. PAR.

- Research Report 1167, A Study of Large Single Port Atmospheric Gas Burners—Flashback Characteristics on Ignition (utilities and manufacturers). Available from A. G. A. Laboratories; 50 cents a copy. PAR.

- Research Bulletin 61, Investigation of Heating Contemporary Gas Food Service Equipment with Power Burners (utilities and manufacturers). Available from A. G. A. Laboratories; \$1.00 a copy. PAR.

- American Standard Requirements for Installation of Gas Equipment in Large Boilers (utilities and manufacturers). Available from A. G. A. Laboratories; \$1.00 a copy.

- Addenda to American Standard Approval Requirements for Central Heating Gas Appliances, Recessed Heaters (utilities and manufacturers). Available from A. G. A. Laboratories; 50 cents a copy.

- Addenda to American Standard Approval Requirements for Central Heating Gas Appliances, Alcove or Closet Installation of Furnaces and Boilers (utilities and manufacturers). Available from A. G. A. Laboratories; 50 cents a copy.

- Addenda to American Standard Approval Requirements for Gas-Fired Room Heaters (utilities and manufacturers). Available from A. G. A. Laboratories; 40 cents a copy.

- Research Bulletin 60, Summary Bulletin Interchangeability of Various Fuel Gases with Manufactured Gases (utilities). Avail-

## Gas burner boosts equipment sales



C. T. Burg, president, Iron Fireman's sales subsidiary, explaining new industrial gas burner to A. O. Leech (left) and G. E. Healy, executives of Portland (Ore.) Gas & Coke Co., at utility's sales meeting. The burner helped to boost the manufacturer's gas equipment sales 110 percent in 1950



able from A. G. A. Laboratories; \$4.00 a copy. PAR.

#### Statistical Bureau

• **Monthly Bulletin of Utility Gas Sales, November 1950.** Available from A. G. A. Statistical Bureau without charge.

#### General

• **1950 Rate Committee Report** (for rate men). Published by A. G. A. Rate Committee; available from A. G. A. headquarters at \$1.00 a copy.

#### Utilization research

• **Investigation of Heating Contemporary Gas Food Service Equipment with Power Burners** (for gas company and manufacturer company delegates and special mailing list). Produced by Committee on Industrial and Commercial Gas Research; available from A. G. A. headquarters at \$1.00 a copy. PAR.

• **Study of Burner Flexibility on Various Base and Peak Load Gases** (same audience as above). Produced by Committee on Domestic Gas Research; available from A. G. A. headquarters at 50 cents a copy. PAR.

• **Calibration Characteristics of Subsurface Pressure Gages**, reprint of article by R. V. Smith, E. J. Dewees, R. H. Williams. Covers work under A. G. A. PAR project NGD-3, "Gauging and Controlling Oil and Gas Wells." Initiated in 1934, this is the oldest continuous project of the A. G. A. research program. Limited number of reprints available without charge from A. G. A. headquarters. PAR.

## Billboards tell dramatic sales story



(Top) Powerful sales story on gas water heating is dramatized by this Hartford Gas Company billboard. Bottom picture shows one of five New Freedom Gas Kitchen signs sponsored by Minneapolis Gas Co.

## Radically redesigned 1951 gas refrigerator unveiled

Sweeping new refrigerator designs featuring "more space inside, less space outside" will soon be exhibited by Servel dealers across the country. The new gas refrigerator will carry a lower price tag than last year's model, plus an unprecedented ten-year warranty covering every model.

Radical design revisions now allow almost complete utilization of the base housing space, usually taken up by operating mechanisms in most refrigerators. Thinner walls are made possible by use of more effective, highly concentrated insulation. All models are finished in white Newton, with stain-resistant white porcelain interiors.

The ace model, the "Royal Tudor," has 11.5 cubic feet of storage space. It has two separately operated doors, one sealing an independent, integrated two-cubic foot freezer compartment. This compartment is capable of freezing 70 ice cubes at one time.

Introducing the new line at a special press showing, John Knighton, Servel general sales manager, noted that "the company anticipated government efforts to hold down prices by voluntarily setting 1951 model prices lower, generally, than those of comparable 1950 refrigerators. We are able to do this," he said, "in spite of the fact that the new Servels offer more features than ever before, and the cost of transferring these features from the design



No more searching for small items! Odds & ends basket, a Servel exclusive, shown above in the new 1951 Royal Tudor gas refrigerator, provides an easy-to-slide out storage space for assorted foods

stage to actualities literally has skyrocketed." All eight models in Servel's Royal, Delux and Economy series have been designed by Walter Dorwin Teague and Donald Dailey.

They represent one of the best examples today of how closely a home appliance manufacturer can follow the newest consumer-dictated trends in design and utility.

## Four executives elected at East Ohio

**FOUR EXECUTIVES** have been promoted to key management positions at The East Ohio Gas Co., Cleveland. William G. Rogers has been named executive vice-president; George W. Horsley, Robert W. Ramsdell and John H. Carson have been elected vice-presidents. All four men are members of American Gas Association.

Mr. Rogers, a vice-president since 1939, joined the company as an engineer. He was named assistant secretary in 1932 and promoted to secretary and treasurer in 1933. He studied civil engineering at Case Institute of Technology.

Mr. Horsley joined the company after graduating from Case Institute in 1915. He has served as general manager since 1949 and prior to that was general superintendent.

Mr. Ramsdell has served East Ohio for 22 years. He was manager of the Youngstown



W. G. Rogers



G. W. Horsley



R. W. Ramsdell



J. H. Carson

division from 1934-44, assistant general superintendent until 1949, and since that time has been general superintendent. He is also a graduate of Case Institute.

Mr. Carson, a graduate of Michigan College

of Mining and Technology, and Case Institute of Technology, has been with the company for 17 years. He has served as assistant chemist, assistant chief engineer, purchasing agent and chief engineer.

Personal  
and  
otherwise

## Director of sales named for Conn. L&P

**ROBERT G. ELY** has been named director of sales for The Connecticut Light and Power Company. Mr. Ely for some years has directed industrial sales work for Public Service Electric and Gas Company at Newark, New Jersey.

Howard W. Memmott, industrial power engineer in the eastern division, has been appointed industrial manager for the company. Both men will have offices in Waterbury until completion of the company's new general office

building in Berlin.

Mr. Ely received his mechanical engineering degree from Cornell University in 1926. He joined Public Service Electric and Gas Company in September of that year.

Mr. Memmott received his degree from Brown University in 1933. Prior to joining Connecticut Light and Power he was employed by Connecticut State Highway Department in New Canaan, and Cherry and Webb Broadcasting Co., Providence.

## Two subsidiaries merge with Consolidated Edison

**CONSOLIDATED EDISON** Co. of New York, Inc., has taken over two of its subsidiaries, Westchester Lighting Company and The Yonkers Electric Light and Power Company.

Consolidated Edison's policy of local administration for its Westchester County electric and gas operations remains unchanged. Edward P. Prezzano and L. A. Scofield, president and vice-president, respectively, of the two Westchester utilities, have been elected vice-presidents of Consolidated Edison and will direct the company's Westchester division.

The merger eliminates expenses incurred in maintaining the Westchester companies as separate corporate units. Electric and gas operations in Westchester County have been integrated with Consolidated Edison operations for a number of years. Consolidated Edison's program of corporate simplification has now reduced the number of its system companies from 18 in 1930 to four at the present time.

Mr. Prezzano began his utility career in 1902 as a clerk for Standard Gas Light Company. Two years later he joined Consolidated Gas Company and by 1922 had advanced to be assistant general commercial manager. He joined Westchester Lighting as secretary in 1924 and later was elected vice-president of The Yonkers Electric Light and Power Company and a vice-president of Bronx Gas and Electric Company. He became president of Westchester Lighting and of the Yonkers

company in 1936, later becoming a director of both companies as well as a trustee of Consolidated Edison.

Mr. Scofield joined New York Edison as an assistant tester in 1912. He worked steadily upward through the ranks becoming general distribution manager of Consolidated Edison by 1941. He later became general sales manager and assistant vice-president of the parent company before being elected vice-president and director of Westchester and Yonkers companies in 1948.

Consolidated Edison also announced the election as assistant vice-president of Frank J. Bischoff, formerly vice-president and director of the Westchester companies. Other Westchester and Yonkers utility executives elected as officers of Consolidated Edison are: John P. McLoughlin as assistant controller; Carl L. Carlson as assistant treasurer, and Frank M. Nilan as assistant secretary.

Mr. Bischoff learned the utility business first-hand in rank-and-file jobs before becoming a vice-president of the Westchester and Yonkers companies in 1946. He began in 1903 with Consolidated Gas, did accounting work



E. P. Prezzano



L. A. Scofield



F. J. Bischoff

for that company and the Astoria Light, Heat and Power Co., and eventually became controller of Consolidated Edison.

Mr. McLoughlin has been affiliated with the Westchester utility companies since 1909. He was secretary and treasurer of the Westchester and Yonkers companies at the time of the merger.

Mr. Carlson was first employed by Westchester Lighting in 1912. He rose to auditor of disbursements of both the Westchester and Yonkers companies and, later assistant treasurer.

Mr. Nilan began with Westchester Lighting as an office boy in 1914. By 1943, he had become executive assistant to the president and assistant secretary of both Westchester County utility companies.

## Gas operations executive elected in Dayton

**C**EARL LAKIN has been elected vice-president in charge of gas operations, The Dayton Power and Light Co., Dayton, Ohio.

Mr. Lakin's entire education and working experience, as well as his Army service in World War I, have been in the utility field. From 1926-1932 he had general supervision of electrical operations and construction of all subsidiaries of National Electric Power Co., New York. He was named president and director of the Indiana and Ohio subsidiaries of United Public Utilities Corporation in 1932, and served in that capacity until The

Dayton Power and Light Company purchased the Ohio holdings in 1948. At the time of his latest appointment, Mr. Lakin was manager of the company's western division.

He studied engineering at Texas A & M and at Carnegie Institute of Technology.



C. E. Lakin

## New York State Natural



W. G. Comin, Jr.



F. A. Jaxtheimer

**O**FFICIALS of New York State Natural Gas Corp., Pittsburgh, have announced the election of Walter G. Comin, Jr., Wilkesburg, as treasurer. Fred A. Jaxtheimer has been appointed to serve the company as assistant treasurer. Both men are members of American Gas Association.

Mr. Comin had been assistant treasurer of the company since November 1946. Mr. Jaxtheimer had previously been with the company as head of the accounting department.

## Long Island Lighting

**D**IRECTORS of Long Island Lighting Co., Mineola, N. Y., have elected Charles E. Elbert secretary of the company to succeed Edward J. Crumney, who retires on March 1.

Mr. Elbert formerly was assistant secretary. He will be succeeded in that capacity by Francis J. Thumser, a member of the company's legal department.

## Philadelphia veteran retires

**P**A. WILSON, assistant secretary of Philadelphia Electric Co., has retired after 50 years of service. He is succeeded by Howard R. Cressman.

Mr. Wilson has been in utility work for his entire business career and has occupied many important posts with Philadelphia Electric.

Mr. Cressman joined the company in 1911.

## Kentucky West Virginia names appointments

**FOUR** APPOINTMENTS have been announced for Kentucky West Virginia Gas Company.

Coleman D. Hunter who has served the company since 1926, has been named chief geologist. Mr. Hunter joined the company as assistant geologist. He since has served as geologist and chief of geology and research in the engineering and geology department. A graduate of University of Kentucky, Mr. Hunter is a member of Kentucky Oil and Gas Association and other organizations. William O. Smith has

been appointed assistant to the chief geologist.

George W. Hereford has been named gas engineer and will serve in an advisory engineering capacity to operating personnel. He will also direct work of the gas measurement division. A graduate of Marshall College, Mr. Hereford has been affiliated with Kentucky West Virginia Gas Company since 1941. In 1945 he was appointed supervisor of gas measurement, a position in which he is now succeeded by P. D. Wells.



C. D. Hunter



G. W. Hereford

## Jacob president of Pennsylvania natural gas men

**J**OHAN J. JACOB, JR., vice-president and general manager, The Peoples Natural Gas Co., Pittsburgh, has been elected president of Pennsylvania Natural Gas Men's Association.

Other officers elected at the association's annual meeting are: *Vice-President*—H. H. Pigott, vice-president, Equitable Gas Co., Pittsburgh; *secretary-treasurer*—P. L. Kesel, treas-

urer, Carnegie Natural Gas Co., Pittsburgh; *executive-secretary*—Mark Shields, Pittsburgh.

Directors include: C. E. Bennett, The Manufacturers Light & Heat Co., Pittsburgh; E. M. Borger, The Peoples Natural Gas Co., Pittsburgh; H. D. Freeland; D. P. Hartson, Equitable Gas Co., Pittsburgh; J. H. Isherwood, North Penn Gas Co., Port Allegany; J. J.

Jacob, Jr., The Peoples Natural Gas Co., D. S. Keenan, Carnegie Natural Gas Co., Pittsburgh; Irving K. Peck, The Manufacturers Light & Heat Co., Pittsburgh; B. D. Phillips, T. W. Phillips Gas & Oil Co., Butler; H. H. Pigott, Equitable Gas Co., Pittsburgh, and Howard Rose, United Natural Gas Co., Oil City.

## Southern Counties names secretary and counsel

**M**ILFORD SPRINGER, former Los Angeles deputy city attorney, has been named secretary and counsel, Southern Counties Gas Co., Los Angeles. He has also been elected to the board of directors.

Mr. Springer has been connected with the legal department of Southern California Gas Company since 1946 and is a graduate of Stanford University and Stanford Law School. Between 1937 and 1943 he was a member of the

legal staff of Federal Communications Commission, Securities Exchange Commission and Federal Power Commission. He is currently a member of American Gas Association.

## Huyck made vice-president at Brooklyn Union

**T**WO PROMOTIONS have been announced for The Brooklyn Union Gas Company. Ansel B. Huyck has been elected vice-president and chief engineer. William J. Towner has been appointed engineer of distribution.

Mr. Huyck has been with Brooklyn Union for 20 years. He joined the company as assistant superintendent of Greenpoint Works, became superintendent in 1933, and was named assistant engineer of manufacture in 1937. In

July 1940 he advanced to engineer of manufacture and in 1945, assistant chief engineer. He has been chief engineer since April 1948. Mr. Huyck is a member of A. G. A.

William Towner succeeds C. S. Goldsmith, former chairman of the Association's Technical Section, who retired recently after 30 years of service with Brooklyn Union. Mr. Towner joined the company in 1933 as a trainee. After serving in various posts, he became assistant

superintendent in holder distribution in 1947, and advanced to superintendent in 1948. In May 1949 he was named assistant engineer of distribution. Mr. Towner is a member of A. G. A.



A. B. Huyck





## Burt R. Bay

past-president and director of Northern Natural Gas Co., Omaha, Neb., died in Granville, Ohio, on January 31 following a fall on the ice in front of his home. He was 65 years old.

Mr. Bay was a prominent figure in gas industry circles. He was active in American Gas Association and chairman of the A. G. A. Natural Gas Section in 1943. In 1945 he served as president of Midwest Gas Association.

His gas industry career began at the age of 22 when he became a machinist in the Granville, Ohio compressor station of Columbus Natural Gas Company. A series of promotions later advanced him to superintendent of the company's compressor plants. Under his direction, the company built one of the early natural gas absorption gasoline plants.

In 1917 he was transferred to Bartlesville, Okla., as superintendent of gas compressor and oil pumping stations for the Empire Gas Group.

Three years after joining the group, Mr. Bay was made assistant general superintendent of the natural gas division. Shortly afterwards, he was made general superintendent. In that position, he supervised construction of the first all electrically welded pipeline in the country.

He became vice-president and general manager of Missouri-Kansas Pipeline Company in 1929, the year in which the company organized Panhandle Eastern Pipeline Company. Mr. Bay played an important role in the plan-

ning, construction and development of that major pipeline system. He was elected president of Panhandle Eastern in 1933.

In August 1938, Mr. Bay joined Northern Natural Gas Company as executive vice-president and director. In January 1939 he became president, retaining that post until his retirement in September 1950. He remained a director until his death.

He is survived by his wife; a son, Don; two daughters, Mrs. Charles Craddock and Mrs. Morven Curran, and six grandchildren.

## Thomas J. Kelly

division manager of Northern Indiana Public Service Co., Fort Wayne, died on January 13 of a heart attack.

As graduate of Purdue University, Mr. Kelly had been employed by Northern Indiana Public Service and its predecessor company since 1914. He was made division manager at Fort Wayne in 1933.

Mr. Kelly was a member of American Gas Association and served on several A.G.A. Committees. He was past-president of Indiana Gas Association, and played a prominent part on its research committee.

Survivors include his wife, three daughters, four sons and 12 grandchildren.

Robert L. Kaade, formerly division sales supervisor at South Bend, has been appointed to succeed Mr. Kelly.

## A. Virgil McRee

secretary of Michigan Consolidated Gas Co., Detroit, died on December 27 following a year's illness. He was 50 years old and had served the company for 22 years.

A graduate of University of Kentucky and Detroit College of Law, Mr. McRee was ap-

pointed assistant secretary of Michigan Consolidated in 1937. Three years later he was named assistant secretary-treasurer and in 1944 secretary. He was also secretary of Michigan Wisconsin Pipe Line Company during the four-year period of the development and construction of the line. At the time of his death, he was secretary of Austin Field Pipe Line Company.

Mr. McRee was a member of American Gas Association and Michigan Gas Association. Surviving are his wife, Mrs. Erma Epling McRee, and a daughter, Mrs. Virginia Lee Atwater.

## Charles H. Tenney

a prominent figure in the utility industry since 1900, died in Springfield, Mass., on February 7. He was 82 years old.

Mr. Tenney was chairman of the boards of seven utility companies—Concord Electric Co., Exeter and Hampton Electric Co., Fitchburg Gas and Electric Light Co., Pike County Light & Power Co., Rockland Light and Power Co., Brockton Gas Light Co., and Springfield Gas Light Company.

He entered the utility field in 1900, when he became president of Malden (Mass.) Electric Company. During World War I, he was chief of finance of the Ordnance Department in Washington and served overseas in that capacity. He later organized and was chairman of the Ordnance Salvage Board. In World War II he was chairman of the advisory board of Boston's Ordnance District.

Surviving are his wife, Mrs. Emma Milliken Tenney; two sons, Rockwell Campbell Tenney and Charles Milliken Tenney; a daughter, Mrs. Elizabeth Moses, and a sister, Mary Phelps Tenney.

## Research news

(Continued from page 24)

sis of this temperature variable, completely independent of other variables such as aeration. Consequently, the new study covers the effects of flame impingement when burning natural, mixed and manufactured gases, using contemporary range giant burners and water heater burners with a constant excess air value of 150 percent. This condition approximates that usually obtained on range top burners.

Figure 1 shows the experimental combustion chamber employed and illustrates how accurate control of secondary air was achieved. Impingement surfaces included a steel plate one quarter inch thick by nine inches square. This was provided with resistance coils for controlling its temperature. A ceramic plate was also used. Satisfactory combustion was evaluated in the same manner as that employed in current gas range approval testing.

The study indicated that properly controlled flame impingement may be employed to advantage in many domestic gas heat applications. The degree of allowable flame impingement consistent with satisfactory combustion increased as the temperature of the impingement surface increased.

It appears that if it were possible to quickly heat a surface to about 1,250° F (above the usual range of temperatures in most domestic appliances) a considerable amount of impingement could be tolerated. From a practical standpoint, this information has a direct bearing on the design of high temperature radiation surfaces, such as extended surfaces of broiler burners and ceramic radiants in space heaters. The data indicates that in some instances acceptable combustion might be obtained with limited flame impingement at surface temperatures as low as 260° F with manufactured gases and below 900° F with natural gases. The amount of impingement allowable

increased directly as the burning speed of the gas increased.

It was found that vertical port burners or burners with flames normal to and below a horizontal surface, permitted more impingement than burners with angled ports or angled flame impingement. As much as 50 percent more impingement was found practical on horizontal surfaces with Laboratories mixed gas than with natural gas. When gas is the only variable, manufactured gas may permit as much as 125 percent more flame impingement than natural gas. Investigation indicated that greater impingement could be tolerated with ceramic surfaces than with surfaces of iron or steel because of the more rapid increase in surface temperature.

In water heaters, not only are the burner flames directly below the coldest portion of water-backed metal surfaces, but the flue gases pass along tank surfaces which become chilled when heavy draws of hot water are made. Here condensa-

tion from hot flue gases in contact with cold surfaces is the important problem facing designers.

In order to obtain a better understanding of this phenomenon and to gather pertinent fundamental information, special closed water troughs were constructed so that temperature of the heat transfer surfaces could be closely controlled by means of water flowing through them. The construction is shown in Figure 2. Condensation data on different metals were obtained by using troughs of copper, monel and galvanized iron. The troughs were heated in a small experimental sheet metal combustion chamber with provisions for aeration and venting.

Varying the distance of the metal surface above the burner flames from a quarter-inch to one-and-one-half inches was found to have no effect on the rate of condensation formation for various surface temperatures below the dew point of the flue gases. However, when the flames just impinged on the surface, the rate of condensation was decreased. With the surface at 20° F below the flue-gas dew point, a decrease from 4.9 to 4.3 grams per hour was experienced. At 15° F and 10° F below the dew point no condensation was collected although the metal surface was wet.

The condensation study was concerned mainly with fundamentals of condensation as affected by the use of different metals. Included were determinations of the rate of condensation formation for the metals maintained at a constant temperature, determinations of the rate of transferring heat to water, and the rate of condensation disappearance on metals backed by still water. In addition, a resume of published information was made and analyzed in the light of data gathered in the laboratory study. This analysis was employed for making recommendations on methods of minimizing the effects of condensation.

It was found that for all practical purposes the type of metal usually employed has no effect on the rate of condensation from flue gases when they are cooled below their dew point. However, reflecting copper and reflecting galvanized iron surfaces exhibited filmwise condensation. On the other hand, clean reflecting monel metal exhibited dropwise condensation. Also all metals with a black body surface exhibited filmwise condensation.

Technically, the rate of transferring heat to water and the rate of condensa-

tion elimination were found greater for dropwise than for filmwise condensation. They also were increased by a change from a reflecting to a black body metal condition.

In reviewing published information on condensation formation, such design factors are considered as the area of condensing surface exposed to flue gases, methods of introducing cold inlet water, and recovery capacity of the heater.

In addition to reviewing known methods for minimizing condensation, other possible methods are explored in Bulletin 58. These center around methods for introducing cold inlet water and preventing flue gases from impinging upon the colder water-backed flue passages. Figure 3 shows sketches of external and internal flue heaters using flue gas deflectors. Figure 4 shows the use of a water jacket or sections around the main storage tank.

Both bulletins can be obtained from American Gas Association Laboratories, 1032 East 62 St., Cleveland 3, Ohio; prices are: Bulletin 58—\$1.25; Bulletin 59—75 cents.

## Distribution conference

(Continued from page 30)

Michigan Consolidated Gas Co., and Don Findlay, Iowa Illinois Gas & Electric Co., Fort Dodge, Iowa.

The Construction and Maintenance Luncheon meeting on Tuesday will feature movies and a discussion period. The movies will show distribution trenching and backfilling methods.

The Meters and Metering Luncheon Conference will open with a discussion of problems relating to metering work. Discussion leaders will be J. W. Chrisman, The East Ohio Gas Co., Cleveland; G. K. Bachmann, Public Service Electric & Gas Co.; G. V. Morey, Consolidated Edison Co. of New York, Inc.; G. Estill, Oklahoma Natural Gas Co.; G. E. Griffin, The Brooklyn Union Gas Co., and A. C. Bateman, Providence Gas Co.

S. G. Page, chairman of the EEI Motor Vehicles Committee, will preside at the joint luncheon conference on Tuesday. The meeting will open with a talk by Ruel Logan, Weaver Manufacturing Co., Springfield, Ill., "Wheel Alignment and Its Importance in Utility Fleet Operations." W. A. Howe, Gulf Oil Corp., will follow with "Application of Fuels and Lubricants in Utility Fleet Operation." A round-table discussion is the last feature on the agenda.

The Work on Consumers' Premises luncheon conference will feature a discussion. G. B. Johnson, Minneapolis Gas Co., committee vice-chairman, will preside. Topics include company-owned radio vs. mobile telephone service; customer reaction to service; use of magnesium anode rods in water heater tanks, and oven control problems.

The third general session will convene on Wednesday morning. J. G. White, assistant to general superintendent of distribution, The Peoples Gas Light & Coke Co., Chicago, and Fred Heimerdinger, superintendent of installation and service department, The Gas Service Co., Kansas City, Mo., will discuss "The Effect of New House Heating Load on Customer Service." E. G. Watkins, division engineer, Consolidated Edison Co. of New York, Inc., will discuss "Anchorage of Gas Mains." "A Guide Covering Changeover Practices" will be presented by J. J. Turpish, assistant superintendent of distribution, New York and Richmond Gas Co., Staten Island, K. J. Burnett, general superintendent, United Gas & Fuel Co., Hamilton, Ontario, and D. L. Drake, superintendent of fitting department, Consolidated Gas Electric Light & Power Co. of Baltimore.

A forum on protection of distribution system from enemy action will complete the program. Panel members will be announced later.

The joint Motor Vehicles Conference will be continued on Wednesday morning. W. E. Albright, The Philadelphia Gas Works Co., vice-chairman, A. G. A. Motor Vehicles Committee, will preside.

W. C. Baylis, Niagara Mohawk Power Corp., is the first speaker on the agenda. His topic is "Two-Way Radio Problems Important to Fleet Operations." E. W. Jahn, chairman, Subcommittee on Driver Manual, will discuss the work of his group. The desirability of meetings in addition to the annual meeting will be discussed with P. W. Rogers and S. W. Page soliciting suggestions from members. A round-table discussion on many subjects relating to motor vehicles activities is also slated.

The final general session on Wednesday afternoon, last meeting of the conference, will be devoted to safety and accident prevention. This program is for everyone, including the ladies.

E. S. Beaumont, director of safety, The Peoples Gas Light & Coke Co., and presiding officer for the meeting, will be intro- (Continued on page 42)

## Laboratories

(Continued from page 32)

In the industrial and commercial field, an exploratory study has been made into the possibilities of the industry eventually supplementing atmospheric burners in heavy-duty ranges and broilers with radically different types of combustion and burners. Results are reported in Bulletin 61, "Investigation of Heating Con-

temporary Gas Food Service Equipment with Power Burners." The bulletin explores the possibilities of using power burners in contemporary hot top commercial ranges and unit broilers. The experimental apparatus demonstrated the extent to which power burners could be employed in a satisfactory manner. It also showed that there is a likely possibility of improving such factors as thermal efficiency, preheating speeds,

heat distribution and gas maintaining rates through use of power burners. Technical problems that will be encountered were explored and appraised.

These bulletins may be obtained from American Gas Association Laboratories, 1032 East 62 St., Cleveland 3, Ohio. Prices are: Bulletin 59—75 cents; Report 1167—50 cents; Bulletin 60—four dollars; and Bulletin 61—one dollar.

## Distribution conference

(Continued from page 41)

duced by Distribution Committee Chairman V. F. Bittner. "Accident Prevention Is Your Baby," by W. H. Adams, The Manufacturers Light & Heat Co., chairman of the A. G. A. Accident Prevention Committee, is the first talk on the agenda. This presentation will be followed by a skit entitled "Vitalize Your Safety Program." "Safety—Humanity—Economy" will tell the success story of accident prevention in a large organization.

A film, "Safe As You Think," will follow. George MacDonald, senior engineer, National Safety Council, will talk on "Let's Take the Secret Out of Safety."

For those who arrive early or leave late, an inspection tour of the gas dispatching and remote control system of Memphis Light, Gas & Water Division has been arranged.

## Records

(Continued from page 16)

The means of protecting other records through existing or prepared duplicates or carbon copies, as well as the storing of trial balances or detailed supporting posting information, is a common practice with most companies. It needs no further comment here.

Since there is no fully desirable substitute for original records, adequate protection of important current original records should be enforced by the utilization of fire resistant safes and files and vault space at headquarters offices. All-night protection should be given these records. In addition, a plan should be developed for their fast removal to vaults, safes, etc., during the day in event of emergency.

## Where to protect records

The answer to this section is pretty well inferred or covered in the preceding sections. Each company will have to decide

this issue in the light of its available remote locations. It has been found that normal storage conditions of temperature, humidity, cleanliness, and other care generally will cover the storing of microfilm, and that no special equipment is needed. Bank vaults in outlying areas are being considered by some companies as the safest storage for microfilm of the more important records. Such vaults should be investigated to make certain that they are fireproof and free from flooding from broken water mains, etc.

Supervision of the emergency storage quarters should be most effectively provided to control not only the uninterrupted flow of records to and from storage at specified intervals, but to assure their efficient handling, segregation, and processing while in storage.

## Conclusions

The following summarized steps are considered essential for a well-balanced protection program against the destruction of records by abnormal hazards:

(1) Appoint an employee to coordinate the emergency protection of records program with the program for protection of plant and possible dispersion of personnel.

(2) Have each department carefully evaluate its records. Consideration should be given to the effect on future operations should the records be destroyed. It is considered that only records essential for future operations should be included in the program.

(3) Concentrate on offices that are located in cities considered of strategic importance. Many companies have decentralized local offices and the great majority of these locations can be considered relatively secure.

(4) Avoid microfilming or otherwise duplicating records which are presently duplicated and housed in offices sufficiently distant to provide reasonable protection.

(5) Avoid duplicating records of historical or statistical nature which are normally preserved for auditing and reference purposes, but have very little, if any, usable value to the company for future operations.

(6) Recognize that there are large volume records (such as materials and supplies and certain customers accounting and collecting records) which are practically impossible to protect fully. Expect to incur certain losses in the event of bombing and record destruction.

(7) Carefully select the type of microfilming and related equipment considered best suited for the needs of the company. Carefully consider the volume, type and size of the records to be photographed.

(8) Store the film, readers and enlarging and developing units in locations considered safe from attack and accessible, when and if needed.

(9) Remember that it is just as serious to under-protect as it is costly and impractical to over-protect.

This report of necessity is general in nature. However, we hope that it is sufficiently detailed to crystallize thinking on a practical basis and to focus attention on the necessity for protecting records in the event of disaster.

With no previous pattern available, divergent opinions naturally exist throughout the industry not only as to the necessity for such a program, but also as to what course of action to pursue and what records require extraordinary protection. We have attempted to recognize all of these factors.

We also appreciate that companies operating in areas of strategic importance, with existing storage of varying types and under differing plans of operation, must of necessity develop varying points of view on a record preservation program.

We have attempted, therefore, to channel the best in current thinking on this



problem to the industry for consideration of each company's own problem.

Here is a suggested procedure for microfilming essential corporate and operating records. The specific records to be microfilmed are listed in a separate section of this paper.

Management's program for microfilming records is strictly for protection against the loss of original records as the result of fire, explosion or other catastrophe. Voluntary destruction of original records and the use of microfilmed copies as a substitute for such records is not contemplated in the present program. This accounts for the suggested limited use of index guides, the proposed filing of the developed film in a central depository removed from the general office, etc.

Proper organization of work and care in preparing and photographing the records and documents will aid materially in obtaining clear photographic copies of the original records. It is important to bear in mind that the purpose of the program is to provide a means of reproducing essential original records in acceptable form in the event such records are destroyed. For this reason, accuracy and definition should not be sacrificed for speed or other considerations.

Doubtless, additional thoughts and suggestions will develop as actual experience is gained in the microfilming of records. All such suggestions should be referred to the coordinator for consideration and adoption.

#### Preparation for microfilming

The condition of the records to be microfilmed largely determines the amount of preparation required and the time needed to photograph the records. Each department will be expected to arrange and edit its records before sending them to the designated location to be microfilmed. Preparatory work should include the following steps:

(1) Extraneous material and all clips, pins, staples, etc. should be removed from ledgers, files, documents, etc. Torn or damaged documents should be repaired to the extent necessary to provide legible characters and insure the clarity of the micro-photographs.

(2) If you wish to refile, code or add information to certain records before microfilming, do so as far in advance of the microfilming operation as practicable so that the operator has a sufficient backlog for continuous operation.

(3) Indicate red figures, when such figures have significance, by inserting an "R" in the margin of the ledger form, use of brackets (< >) or by inserting a minus sign (—) in front of the figure, as appropriate for the particular document. The camera will not record various colors and when several significant colors appear on a document, such colors must be indicated by code, etc.

(4) Transmit the records to the machine operator in ledgers or containers marked to show the sequence of microfilming, so that there is no possibility of misfiling a group of records on the film.

(5) Scheduled dates for microfilming the records of each department will be established. When practicable, the camera will be moved to the department, otherwise the records must

be sent to a central location in the general office.

#### Future posting and filing

Duration of the microfilming of vital records program and the frequency of microfilming of essential records depends largely on international conditions. Therefore, it is suggested that in posting and filing documents consideration be given to future microfilming of the particular record. Matters such as indicating red figures, folding and filing of documents, etc., should be given current consideration in day-to-day operations.

#### Authorization, microfilming and inspection report

This is a combination report (see Exhibit 1 on page 16) to be used by the department submitting the records to be microfilmed, the camera operator, and the processing of film section where all film (except for confidential records) will be developed and inspected.

The upper section of the form should be prepared in quadruplicate by the supervisor or department manager requesting the microfilming (or his authorized representative) at the time the records are sent to the camera operator. Three copies of the form should accompany the records to the camera operator and the fourth copy retained by the issuing department.

After the records have been microfilmed, the camera operator will complete the center portion of the form. He will retain the third copy and send the original and first copy to the processing department, together with the film to be developed and inspected.

The processing department will develop and inspect the film. Then the original copy of the form, properly certified, will be returned to a designated person in the general office responsible for coordinating the program.

Each department subsequently will be advised by the coordinator as to the acceptability of the developed film. Where practicable, the sequence of the original records should not be disturbed pending such advice, so that any required retakes can be made with a minimum of effort.

#### Issuing department

In completing the upper section of the authorization form (Exhibit 1), the name of the company, department, and date the record is sent to the camera operator, should be inserted. The title of the record should be exact and specific, such as "Continuing Property Record—Account 213, Rights of Way—Field Lines." A separate form should be prepared for each record, or sections of a voluminous record.

Where practicable (such as in the case of certain ledger records) the number of documents sent to the camera operator should be counted before and after the records are microfilmed. This will serve as a control on the return of all records to the proper department. It also will assist the operator in scheduling the required amount of film, inclusion of related records on the same film, indexing, etc.

In completing the information with respect to "Photograph Back of Posted Documents Only," a certain amount of judgment must be used. The camera can be set to photograph the front and back of documents in one simulta-

neous operation or only one side of the document. It is suggested that when 50 percent or more of the documents to be microfilmed are posted front and back, the camera be set to include all documents, thereby effecting a savings in labor. When a lesser percentage is involved, judgment should dictate whether both front and back should be photographed in one operation, or whether the document should be fed through the camera twice to obtain a photograph of both sides of the particular document. In the case of the former, the image of the front and back of the document will appear side by side on the film. In the case of the latter, the image of the back of the document will appear immediately below the image of the front of the document on half the width of the film.

This decision involves camera and operator time, film cost, etc., as well as other departmental considerations, such as proper identification of the back of documents, etc. Border line cases should be discussed with the coordinator.

Balance of the information in the upper section of the form is self-explanatory.

#### Camera

(Note: It is suggested that each company describe the make and type of camera available, setting forth the limitations with respect to width of documents which may be photographed, reduction ratio of lens, power requirements, density controls, etc.)

#### Camera operation

Instructions on care, cleaning, testing and inspection of the camera are included in the manual of instructions issued by the manufacturer. These instructions must be followed carefully.

Provision is made on the form (Exhibit 1) for the operator to check the essential operating information with respect to the camera. While the equipment will not be cleaned and dusted prior to microfilming each specific record, experience and the condition of the records will indicate whether the equipment is considered in proper operating condition.

The counter readings automatically recorded in the camera (readings before and after microfilming each record should be inserted on the form and used as a guide in controlling the number of documents photographed. In this connection, and in instances where it should be practicable to reconcile the counter readings with the number of documents reported by the department requesting the microfilming, due consideration must be given to the number of index and other flash cards used.

The camera operator should complete the center section of the form (Exhibit 1) by inserting the film roll number or numbers and the exact description of the records microfilmed. Following this, the form should be dated and signed by the operator.

The completed film should be placed in the box provided for the purpose and properly identified to show the company name, department, roll number and a brief but concise description of the record microfilmed. Such description should conform with the description shown on the authorization form (Exhibit 1).

(Continued on next page)

## Records

(Continued from page 43)

The rolls of completed film and the original and first copy of the form (Exhibit 1) should be forwarded by first class, registered mail to the processing department. Packing must be done in a manner to insure that there will be no damage in the mail to either the film or containers.

### Related records on same film

In general, the records should be microfilmed by department and company. It will also be desirable to microfilm the records in proper order of account numbers or other sequence appropriate for the particular record. For example, plant accounting records should be microfilmed by company and plant accounts. This will avoid intermingling unrelated records of two or more companies or departments on the same roll of film and simplify the indexing and filing of the film. This may be an important consideration should certain departments be subsequently moved to outlying locations and the film required for emergency operations.

However, it is recognized that in the interest of economy of film, developing and storage space, certain unrelated records must be included on the same roll of film. Except for confidential records referred to in the next paragraph, in deciding on when to start a new roll of film for a department or record, the size, nature and volume of the documents to be microfilmed should be considered in relationship to the remaining footage of unused film on the roll.

Confidential records (film to be developed outside the organization) should be microfilmed on a separate roll of film regardless of the volume involved. Management may wish to designate the person authorized to microfilm each confidential record and prescribe special rules for the filing of the developed film.

### Developing and inspecting film

Information required in this section of the form (Exhibit 1) will be inserted by the processing department after the film has been de-

veloped and inspected. The original copy of the form, properly signed, will be returned to the coordinator in the general office and the copy retained by the processing department.

Any required retakes must be carefully entered on the form.

### Retakes or supplemental documents

Rolls of film shall not be cut or spliced to insert in proper sequence any retakes of defective images or microfilmed copies of documents missed in the original photography. The developed film for such documents shall be attached at the beginning of the roll on which the defective images are included, or, in the case of missed documents, the roll on which the documents should have been originally included.

All retakes or supplemental documents shall be arranged and sectionalized to permit attaching the developed film on the proper roll, as set forth in the preceding paragraph. The records shall be identified and indexed in accordance with the regular procedure (Exhibit 2), and microfilmed at the beginning of a new roll of film. Approximately two feet of blank film should be allowed at the beginning and end of each group of retakes or supplemental records to permit attaching the film to the proper roll.

The processing department shall be responsible for making the attachments and for indicating the inclusion of the additional film on the index attached to the box containing the film. All such supplemental items shall be properly cross referenced and noted on the authorization, microfilming and inspection report (Exhibit 1) originally prepared for the particular record.

### Filing original copy of form

Original copies of the authorization, microfilming and inspection report forms (Exhibit 1) should be accumulated and following completion of each microfilming program, properly indexed, bound and sent to the central depository for safe keeping. Information with respect to developing and inspection may be transcribed from the original copy to the camera operator's copy of the form and the latter retained in the general office.

Index guides, flash cards, etc.

Procedure for indexing the rolls of film on the film itself, use of flash cards, etc. is illustrated on Exhibit 2. Indexing is a most important part of the program. Sample copies of certain index, correction, and other flash cards, referred to on this schedule, are included as Exhibits 3 and 4. The "start" and "end" targets will be furnished with the camera.

Alphabetic or numeric guide captions can be prepared by the operator, as deemed necessary, by simply indicating such guide captions with black crayon on blank 8 1/2" x 11" paper.

In preparing the roll identification form (Exhibit 3), the required roll and identification information should be printed in large size characters.

### Central depository

After the film is developed, inspected, properly identified and packed, it will be sent to the central depository for safe keeping.

All film must be filed by company, department and record.

The matter of temperature and humidity conditions, as well as water or other hazards must be considered in selecting a suitable bank vault or other depository.

### Destruction of microfilm

It is contemplated that the developed film will be carefully housed in the central depository from date of microfilming to the date the same record is again completely microfilmed. At that time the current microfilm will replace the previous film. This program must be carefully studied and destruction of the obsolete film performed in accordance with Audit Department requirements and instructions.

### General

In addition to having the manufacturer instruct employees on the proper technique of operating the camera, the processing department has trained an employee in the operation and maintenance of the equipment. This employee will be available to supervise or instruct the camera operators and assist generally in the over-all program.

## Gas spurs defense effort

(Continued from page 5)

### Defense production and the industrial load

The industrial gas phase of our industry undoubtedly is closest to the defense production picture. A brief round-up of new applications in this field appeared in the MONTHLY in January 1951 on page 40. In order to obtain the latest picture in the industrial field, the MONTHLY recently queried a sample of leading industrial gas men throughout the country.

While there is general uncertainty on the present situation, some interesting facts are revealed by replies to our "spot" survey.

For example, there has been a considerable increase in the use of gas in large industrial plants in Birmingham, Ala., during the past six or seven months. Alabama Gas Corporation experienced approximately a 20 percent rise in

use of gas by heavy industrial customers during the four months ending January 1951 (as compared with the same period a year ago). This increased gas usage has been in plants producing freight cars, in refractories, cast iron pipe and non-ferrous metal recovery and processing plants.

Practically all of the increased gas used has been for existing equipment. However, extensive additions are now being made in two of the three refractories served and in a non-ferrous metal recovery and processing plant. There is some difficulty in obtaining supplies of pipe and fittings, both steel and cast iron. However, sufficient materials have been obtained to handle all necessary expansions.

Chicago—The Peoples Gas Light & Coke Company reports that a number of customers are producing equipment for defense. However, no new gas installations for unusual applications of gas have been noted to date. Regular customers on the company's lines simply have turned their attention to defense work. They are using for that purpose

gas equipment that was used formerly for normal or peacetime production.

Some major gas installations are expected in the territory as soon as defense preparations gain momentum.

**Chatham, Ontario**—Union Gas Co. of Canada Ltd. reports that a few small industries are producing gun and airplane parts for American concerns. The company is prepared to deliver gas in larger quantities to several large concerns in the area which recently obtained government contracts for war materials.

**New Jersey**—Public Service Electric & Gas Company is located in the heart of a "strategic defense area," according to the press. Industrial gas sales have shown rather substantial increases since last April (compared with the same period in 1949). However, the full impact of the defense program remains to be felt. Requirements for gas for industrial process heating are expected to follow the pattern set during 1941-44. During that period industry was called on to supply large quantities of war material and to do so at a maximum rate of production.

**Pittsburgh**—The Manufacturers Light and Heat Company serves a large number of industrial plants in the general Pittsburgh area. Many of these have been producing war or defense components for some months. With greater demands for steel and other metals for defense work, there has been a marked upturn in the glass container industry. Ceramic business, both the dinnerware, utilityware, artware, and the refractories and structural clay firms have stepped up production. Refractories are tied-in directly with the steel expansion program, and can be expected to expand markedly in the next few years.

In most cases, industries served by Manufacturers Light and Heat have foreseen the shortages of basic materials and already have substitute materials in mind. Manhours may be the biggest shortage and the one hardest to solve. Mindful of this problem, industry in the area has turned to mechanization and simplified processes. This last trend calls for greater deliveries of natural gas because of its simplicity and ease of control.

There has been a marked increase in gas used by industrial gas customers. The company's total industrial gas sales have been approximately 30 percent higher for the past four months (through January) than they were in the same period a year ago. This is due largely to speeded-up operating cycles on equipment that has been operating regularly. It is also due to the operation of production units that had been idle for varying lengths of time.

**Brooklyn**—Industrial gas sales of The Brooklyn Union Gas Company in 1950 were 10.3 percent above 1949. January industrial gas sales were 15 percent ahead of January last year. Activity in connection with defense orders undoubtedly has contributed heavily to this increase.

A large amount of gas is used in various industrial processes at the U. S. Naval Shipyard in Brooklyn. Foundries also are extremely active; there is a great increase in demand for all kinds of non-ferrous castings. Most of this is in connection with airplanes.

The gas company is assisting in many gas installations involving such processes as heat treating, melting, forging, glass processing, paint and finish baking. Generally speaking this help takes the form of (1) arranging for a sufficient supply of gas (service, meter, etc.); (2) making recom-

mendations for suitable equipment for these various processes; (3) rendering service in connection with starting and adjusting equipment to give best performance.

The materials situation is changing from day to day. More and more manufacturers of industrial equipment and suppliers of raw materials, particularly copper, aluminum, magnesium and other metals, are requiring DO numbers in order to insure delivery. Valuable bulletins published by the Brooklyn Chamber of Commerce are helping to guide manufacturers in obtaining defense orders. These bulletins keep manufacturers informed on availability of materials.

**Detroit**—Firm industrial gas consumption of Michigan Consolidated Gas Company is holding at the level of the latter half of 1950. Industrial production is at a corresponding level. Production for defense is as yet but a very small portion of local activity. Some contracts have been awarded and others are expected. General opinion is that the defense production will not displace normal production materially before mid-year.

### Prospects in industrial gas equipment

**Philadelphia**—Selas Corp. of America reports that much of its "war-related" equipment now being produced is the result of either its own laboratory investigations for customers, or of collaborative investigations by customers and the company. There has been a substantial volume of such work. However, specific details are "classified" information.

**Toledo, Ohio**—Surface Combustion Corporation has just published a comprehensive bulletin entitled "Heating and Heat Treating Furnaces for Defense Production." This shows how gas-fired equipment can enter into practically every phase of the defense production effort.

"It is our understanding," the company reports, "that shell production largely will be carried out by the methods established in World War II with comparatively few changes in technique."

The company feels that two processes developed since the last war offer considerable promise in the defense production field. They are described in the following reprints available from Surface Combustion: "Homogeneous Carburizing" by O. E. Cullen, and a bulletin on High Speed Heating for Forging (SC-144).

Like most other manufacturers, the firm has experienced an increase in activity that reflects to a considerable degree either actual or anticipated defense production.

**St. Louis, Missouri**—American Stove Company will start production soon on rocket metal components for Army Ordnance.

A portion of the firm's St. Louis domestic gas range factory is being converted to accommodate the project, and production will commence in the near future. Floor space and facilities designated for the rocket program are independent of domestic manufacturing operations and will not interfere with normal plant capacity.

The rocket is regarded as the most effective of all modern anti-tank projectiles, and has proved highly successful in current Korean military action.

This then is the over-all defense picture of the gas industry at the moment.

Further information will be published in future issues of the MONTHLY as the defense program gains speed.



## Performance

(Continued from page 11)

140° thermostat. Therefore, the tank size must be 25 percent greater than that of heater Number 1, or 37½ gallons. Water heater Number 3 is equipped with a 180° thermostat, and the tank size is 30 divided by 120 percent, or 25 gallons. Respective sizes of the three tanks graphically portray the importance of stored-water temperature to water heater performance.

For example: If a washing machine tub of 15 gallons capacity is to be filled with water at 140° and the water in the water heater tank is at 140°, 15 gallons would be drawn from the tank—no cold water used at all.

Should the water in the tank be at 160° and the cold water be at 60°, the hot water required to bring the 15 gallons to 140° would be 80 percent, or 12 gallons of 160° water and three gallons of 60° water.

Looking at these figures again, it will be plain that 20 percent more hot water at 140° would be needed than at 160°. If, therefore, the only job for hot water in that house at that time was to fill the washing machine, a 12-gallon tank at 160° would do quite as well as a 15-gallon tank at 140°. At 180° a 10-gallon tank would serve.

Water heaters are like storage batteries. Both store energy or work. Storage batteries are rated in ampere-hours and the purchaser and the seller are both familiar with what that means. The absurdity of selling a storage battery by the cubic inches in its container is apparent. For example, a prominent manufacturer of storage batteries lists three batteries with cubic space within the container ranging from 678 cubic inches for the smallest to 698 cubic inches (three percent greater) for the largest. But the ampere-hour capacities vary from 120 to 160, 33 percent. It is interesting to note that the size of the container varies only 3 percent from the largest to the smallest, considerably less than the difference allowed between actual and nominal contents of a water heater tank by American Gas Association. In like manner a generator can be likened to heat input and a storage water heater to a battery plus a generator, or, to stick to our own trade, a gas holder and gas generator.

Recovery rating of a water heater is the number of gallons of water the

burner can heat in one hour through a specified temperature rise. Therefore, you need know only the burner's hourly heat input (shown on a plate attached to each gas water heater) and the number of Btu required to raise each gallon through the specified temperature rise, in order to calculate the recovery rating. For a temperature rise of 100°, the A.G.A. Approval Requirements specify a maximum per-gallon heat input of 1,190 Btu. Therefore, the 100° rise recovery rating is the hourly Btu burner input divided by 1,190.

As Figure C indicates, recovery rating, expressed in gallons, is based solely on the hourly Btu input.

## Some practical aspects

Every worthwhile system designed to determine the proper water heater for a given situation tries in some way to establish not only the probable peak-hour hot water demand but also the greatest sustained demand over a period of several hours, as from several consecutive cycles of an automatic clothes washer. Even after an accurate determination of such demands, the salesman or dealer may easily specify the wrong water heater if he is not supplied with readily accessible performance data. The prospective buyer may be reluctant to follow the seller's recommendations unless he is confronted with convincing proof both as to his requirements and the ability of the recommended appliance to satisfy them.

Any sizing system which places its entire dependence on relating number of occupants, bedrooms, bathrooms, automatic appliances, etc. in the household to a simple tank-size specification must necessarily provide a tremendous margin of safety for the wide differences in stored water temperature and in the recovery speeds of contemporary water heaters. Surely every vendor of automatic water heaters would render a better service to the buying public if he were furnished with a simple means of demonstrating the service output of each water heater in his portfolio, and of relating such service outputs to his prospect's known requirements. The gas water heater salesman armed with demonstrable facts concerning relative performance ratings of gas and electric water heaters would find his job much easier.

Basically, this method of rating heat-

ers is well known to anyone familiar with the subject. But lifting the necessary data out of the "fine print" in name plates of the heaters and specification sheets, and placing the meaning thereof in *bold type* (as in the model number of performance rating of the heater) is a logical extension of a practice used for years by some selling agencies. Under that practice salesmen are furnished a sheet giving tank capacities and recovery capacities of the heater at different rises in temperatures and a statement of how much water can be expected to be available during peak loads of different durations.

The gas industry as a whole would find it of inestimable advantage if every heater made by every manufacturer should state its *Performance Rating* in plain sight and join in an effort to have its selling agencies and public understand what it means. This would take the tank size out of the selling picture and substitute in its place an intelligent appraisal of the water heater's performance.

Specifying a heater on the performance rating makes for greater satisfaction to the user and enables the selling agency to sell a better heater and one adapted for the user's use. In addition, by eliminating the tank-size thinking or rating, it puts the gas water heater plainly in a non-assailable competitive position wherever fair competitive conditions exist (except where for special reasons heaters using competing fuels or energies are imperative). In other words, it puts the burden of proof on the competition.

The system of performance rating herein advocated takes into account all three of the important factors affecting water heater performance. It may be related easily to a requirements chart based on known average usage by probable maximum occupants of the household, automatic appliances in use and variables arising from unusual conditions. Such a chart is shown in Table 1.

Tables 2 and 3 are intended to supply the water heater salesman with a means of determining storage rating, recovery rating and performance rating of any gas or electric automatic storage water heater, and have proved simple and effective in the field. However, adoption of the performance rating system by all water heater manufacturers would greatly accelerate general acceptance of

this uniform and practical method of designating water heater service outputs.

Both the sizing chart in Table 1 and the ratings determination charts have been incorporated in an easily operated slide rule which can be produced at relatively low cost.

If the reader is skeptical about the need for a more revealing method of indicating water heater performance, he should review the article "Water Heater Performance" in the January 1951 A.G.A. MONTHLY. Or, if there is doubt as to the importance of hot water temperature, a re-reading of articles in the A.G.A. MONTHLY: "Hot Water in the Laundry" (February 1949), "Selling the Difference" (March 1946), and "Hot Water and Health" by Mr. G. M. Rohde (July, August, September, October 1941) is suggested.\*

You will be surprised to learn that now, truly, it isn't the humidity,—it's the heat that counts!

\* These issues of the MONTHLY are out of stock at A.G.A. However, they probably are filed in local gas company libraries.

## Promotion

(Continued from page 8)

work.

(3) This year's gas refrigerator has long-life design outside.

(4) It has quick change design inside.

(5) The new gas refrigerator freezes as much as 11.02 pounds of ice at once.

(6) Foods taste better and are better for you when stored in the scientific cold zones of the new gas refrigerator.

(7) The new gas refrigerator stores a bushel of frozen meats, vegetables, fruits, ice cream and desserts.

(8) There's never been a household appliance so easy to keep shiny as a new gas refrigerator.

(9) There's a model made just for you.

(10) You can depend on it because it's run by gas—the world's most dependable fuel.

"Ten ways to take a year-around vacation with gas air conditioning," is the title of another new booklet in the "Big 10 Series."

Briefly, the booklet shows that gas-air conditioning does these things:

(1) Keeps you cool all summer.

(2) Keeps you wonderfully warm all winter.

(3) Helps to keep you carefree all year around.

(4) Makes humidity work for you instead of *against* you.

(5) Keeps your family healthy.

(6) Makes your house more modern.

(7) Helps keep your things clean.

The booklet points out:

(8) Your property is safer with gas air-conditioning—windows stay permanently locked. In addition, (9) a new year-around gas air conditioning unit is economical in many ways, and (10) dependable in every way.

The gas incinerator is a subject of another easy-to-read booklet in the "Big 10 Series." The title is "Ten Shortcuts To Quick Clean-Ups with An Automatic Gas Incinerator." Here are the major points. An automatic gas incinerator: (1) Cuts down steps, (2) Cuts down work, (3) Cuts down pests, (4) Cuts down disease, (5) Cuts out odors.

An interesting fact (point number 6 in the booklet) is that gas incineration is not only the modern kind of garbage disposal, but the only kind that is legal in many communities. The booklet also shows (point 7) that an automatic gas incinerator cuts out sore spots, (8) Cuts out dump disposal, (9) Cuts dangers, and (10) Cuts costs.

Already published and in heavy demand are the first four booklets in the "Big 10 Series." Titles are: "Ten Reasons Why Natural Gas Is Nature's Greatest Gift to Modern Living," "Ten Pointers on Modern Laundry Planning," "Answers to the 10 Biggest Questions on Water-Heating," and "Ten Lucky Numbers to Help You Pick the Best Modern Range."

Copies of the booklets can be ordered from Promotion Bureau, American Gas Association, 420 Lexington Ave., New York 17, N.Y. Prices are 4½ cents per booklet for 100-999 copies of the same booklet; 4¼ cents each for 1,000-9,999 copies, and four cents each in quantities of 10,000 or more. Subscribers to the PAR Plan are allowed a discount of 1½ cents a booklet.

## Stotz' book halted

DUE to the sudden death of Louis Stotz last fall, the book on which Mr. Stotz was working, "Who's Who in Public Utilities," will not be published. Mrs. Stotz has reimbursed all officials who had sent in subscriptions to the book in full.



1951

## MARCH

- 12-14 •Mid-West Gas Association, annual convention, Hotel Fontenelle, Omaha
- 26-27 •A. G. A. Eastern Natural Gas Regional Sales Conference, William Penn Hotel, Pittsburgh, Pa.
- 29-30 •New England Gas Association, annual meeting, Hotel Statler, Boston
- 29-30 •Oklahoma Utilities Association, annual convention, Mayo Hotel, Tulsa

## APRIL

- 2-4 •A. G. A. Sales Conference on Industrial and Commercial Gas, Industrial and Commercial Gas Section, Shoreham Hotel, Washington, D. C.
- 9-11 •A. G. A. Mid-West Regional Gas Sales Conference, Residential Gas Section, Edgewater Beach Hotel, Chicago, Ill.
- 10-12 •Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, Okla.
- 16-18 •A. G. A. Distribution, Motor Vehicles and Corrosion Conference, Hotel Peabody, Memphis, Tenn.
- 16-18 •GAMA annual meeting, Drake Hotel, Chicago, Ill.
- 19-21 •Florida-Georgia Gas Association, Hollywood Beach Hotel, Hollywood Beach, Fla.
- 23-25 •National Conference of Electric and Gas Utility Accountants, Hotel Sherman, Chicago, Ill.
- 23-25 •Southern Gas Association, Biloxi.
- 26-27 •Pacific Coast Research & Utilization Conference, Berkeley, Calif.
- 26-27 •Indiana Gas Association, French Lick Springs Hotel, French Lick

## MAY

- 7-8 •A. G. A. Natural Gas Department, spring meeting, Baker Hotel, Dallas.
- 7-11 •National Restaurant Exposition, Navy Pier, Chicago, Ill. (A. G. A. will exhibit)
- 14-16 •A. G. A. Production and Chemical Conference, Hotel New Yorker, New York, N. Y.
- 14-18 •A. G. A. Industrial & Commercial Gas Section, Industrial Gas School, William Penn Hotel, Pittsburgh, Pa.
- 15-17 •Pennsylvania Association, Wernersville, Pa.
- 17-18 •Public Utility Advertising Association, annual meeting, Hotel New Yorker, N. Y.
- 21-23 •Missouri Association of Public Utilities, Jefferson Hotel, St. Louis, Mo.

## OCTOBER

- 15-17 •A. G. A. annual convention, St. Louis, Mo.

# Personnel service

## SERVICES OFFERED

**Controller-Vice President**, skilled administrator, employed large utility; previous heavy industrial experience. Keen analyst, gets things done minimum cost. Thorough knowledge accounting, auditing, finance, control, budgetary functions, surveys, investigations, taxes, insurance, government contacts. Educated business administration, accounting and law. Can relocate, U. S. or abroad; knowledge languages. 1664.

**Executive-Operation or Sales**-16 years' supervisory, sales, engineering experience gas utilities. Practical knowledge most phases gas industry, LP, Natural and Manufactured gas. South or West preferred but will consider other location. Available 30 days. Present position Commercial and Industrial Manager, including house heating for 25,000 meter property. —Married (41). 1665.

**Sales-Advertising**-Promotion Executive. Nearly 20 years' with large gas utility for whom outstanding results were obtained in sales, dealer cooperation, advertising, home service, publicity, public relations, employee publication and safety campaigns. Interested in connection with another utility or long pipeline company. Reasons for change will satisfy prospective employer. 1666.

**Executive Assistant**. Many years experience in utility companies. Unusual knowledge general and customers accounting, stores, payroll, plant records, customer records, gas measurement, etc. Can design systems, coordinate paper work. Know all kinds office machines. 1667

**Sales-Technical or Industrial Management**. Chemical engineer with over two years of experience in main manufacturing plant of large New York gas utility. Degree almost completed in industrial engineering. Desires stable position in sales technical service or one allowing for application of industrial engineering practices. New York City or vicinity. Married. Age 26. Favorable references. 1668.

Twenty years' sales background. Thorough knowledge of residential, commercial, and industrial markets. Sales promotion, trade and dealer relations. Interested in utility converting to natural gas service or progressive LP utility. (45). 1669.

**Manager or Operational Engineer**-22 years' experience in plant operation with working knowledge of most phases of gas industry, particularly training and personnel relations. M. E. Degree. Married. Will locate anywhere. (45). 1670.

## POSITIONS OPEN

**Development Engineer** wanted by Northern California Furnace Manufacturer. Must be thoroughly familiar with A.G.A. testing procedures. Previous experience with development for appliance manufacturer necessary. This position offers a good future with small manufacturer. Submit all personal data with snapshot together with detail of experience, references and salary desired. Replies confidential. 0595.

**Office Methods and Procedures**. Position open in large natural gas company located in the middle west for a man experienced in the development of office procedures and in the design and use of forms. To be considered applicants must furnish full details of qualifications, a brief personal digest, age and salary expectation. Replies will be confidential. 0596.

Immediate opening for **I.B.M. Supervisor**, capable of operating and supervising a new large installation. Requires good general knowledge of accounting and not less than five years experience in tabular work, preferably in the public utility field. To be considered for this position, located in a large mid-west city, applicants must furnish full details of qualifications, a brief personal digest, age and salary expectation. Replies will be confidential. 0597.

**Engineer-Design**, experienced in gas plant design for extensive program of new construction and improvement to present plant facilities by large eastern gas manufacturing company. Salary commensurate with experience. 0598.

**Company Representative**. Position open in sales and service in Northeastern territory. Background of distribution or gas measurement advisable. This is a nationally known concern of unusual stability and progressiveness. Compensation based on experience and contacts with gas utilities. 0599.

**Sales Manager** wanted for manufactured and natural gas properties. Must be aggressive, hard-hitting and interested in increasing number of customers, load and appliance sales. Experience in gas sales required. Write for appointment, giving full resume. 0600

Large gas utility on eastern seaboard requires the services of an experienced **Industrial Sales Manager**. Applicants must be leaders in gas sales to industrial and commercial customers, and allied fields, with an engineering educational background. Salary commensurate with ability. Reply in confidence giving age, education, work experience and other pertinent information. 0601

**Graduate Home Economist** experienced in natural gas utility field to take responsible charge of new department in Albuquerque, New Mexico, one of the fastest growing cities in the Southwest. Must have pleasing personality, neat appearance, age 25 to 35. Guaranteed monthly salary, pleasant working conditions, numerous attractive employee benefits after period of regular employment. Submit abstract of experience, qualifications, employment history. 0602.

**Personnel Director** for newly developed Eastern natural gas transmission company. Must have several years experience in oil or gas industry and be willing to travel. In reply, state in detail past experience, education, age, references, salary requirements. Replies held confidential. 0603.

Large and expanding utility company located on the Eastern seaboard needs experienced **Gas Engineer** to assist in contemplated conversion to higher Btu gas. Permanent position is offered to man with at least five years of experience in transmission, distribution and conversion problems. Write giving full particulars of personal background, education, experience and salary desired. Replies will be treated with the strictest confidence. 0604.

**Wanted Immediately Engineer** experienced in natural gas utility field by one of fastest growing natural gas companies in Southwest. Must have following qualifications. More than 30 years of age. Prefer person with college degree in engineering: petroleum, civil or mechanical. At least three years of college and five years of experience with natural gas or natural gasoline company, including the following phases: drafting, compressor station design and operation, hydrogen sulphide removal plants, gas well testing, gas measurement, drilling operations. Salary commensurate with experience. Pleasant working conditions, numerous attractive employee benefits after period of regular employment. Location in Dallas, Texas. Submit abstract of experience, qualifications, employment history. 0605.

**Gas Engineer**-Technical graduate with supervisory experience for large West Virginia blue gas plant making process gas for chemical synthesis. Must have thorough basic knowledge of all gas making processes and ability to translate this into efficient operation. Experience with automatic grates and by-product ovens desirable. Salary commensurate with experience. 0605.

**Staff Engineer** for design and development of gas heating equipment by established midwest corporation located in city of 50,000. Must be college graduate with experience. Excellent salary to right man. Good opportunity to advance. Top employee benefits. All inquiries confidential. 0607.

## Round-table

(Continued from page 26)

● **Military deferments**-A real manpower squeeze is shaping up for 1951. The Pentagon is talking about three and a half million men under arms. Have reservist recalls or the draft given your company much trouble yet?

When certain of your employees are summoned to duty, you will probably want to ask, "Can't we keep them for a little while?" Setting up the company's deferment handling machinery requires two steps—planning and organization. So say nine firms who recently described their plans on this matter to The National Industrial Conference Board. Other points of advice they gave are these: Make deferment handling a personnel department function; centralize it as far as is geographically possible; have it geared to move fast; and don't forget the public relations angle when requesting deferments.

Descriptions of the plans in use by these

nine companies, plus a brief outline of the deferment criteria used by Selective Service and the Department of Defense, appeared in the January issue of *The Management Record* published by The National Industrial Conference Board.

● **Guarding executives' health**-A unique program of health examinations has been operating at Greenbrier Clinic in White Sulphur Springs, W. Va., for two years. The clinic was organized in 1947 at the suggestion of Edward Stettinius, who felt that if executives could go to a resort and have a leisurely examination outside the hospital and usual clinic atmosphere, more would be "enticed" to have a yearly check-up. It was not to be a routine medical examination, but a careful, positive health inventory. This would explore the executive's habits, anxieties, if any, social and business problems, and anything else that might have a bearing on his health and efficiency.

The first two years' experience has been most informative. One company has sent 89 executives for examination. In only 11 of these no disease was found; 24 were overweight, and 29 had disease of the cardiovascular system.

● **Code of ethics for labor arbitration**-U. S. Federal Mediation and Conciliation Service has approved a code of ethics for labor arbitration issued jointly by American Arbitration Association and National Academy of Arbitrators. Main authors of the code, the first of its kind, were Lloyd K. Garrison of American Arbitration Association and David L. Cole of National Academy of Arbitrators.

First part of the code describes the office of arbitrator, the role of the employer and union nominees on a tri-partite board, the qualification for office and the conduct and duties of the arbitrator. Second part of the code is devoted to procedural standards for arbitrators. Third part deals with the conduct and behavior of the parties submitting the dispute.



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# American Gas Association

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